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Original Contributions.

BONWILL LAW IN EVERY-DAY PRACTICE.

By H. A. Pullen, D.M D., Buffalo. Read Before the St. Louis Dental Society, November, 1900.

The discovery and practical application of the laws relating to the scientific articulation of the human teeth by the late Dr. Bonwill marks one of the most important advances in the history of dental science during the last half century. The inventor, believing in his inspiration in their unique discovery, and despairing of

Mounting lower and upper casts by measurement.

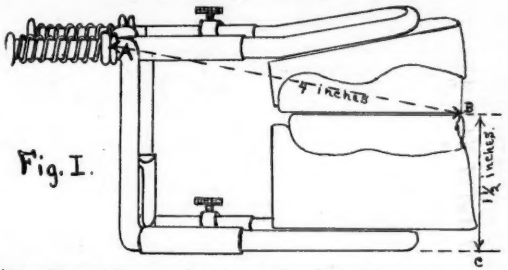

Fig. I.

A B—4 inches—distance from condyle A to median line of lower wax, or to mesio-incisal angles of lower centrals.
B C—1¼ inches—height of surface of lower wax from base of articulator.

their presentation in a form intelligible to the mass of the profession, quoted from Kepler, who realized the inability of others to grasp at once the laws of motion which he had discovered, saying "God has waited six thousand years to reveal this to me, I can afford to wait a century to have others receive it." That this limit for the full recognition of Bonwill's discoveries may not be exceeded depends now upon the zeal and enthusiasm of his disciples.

In order to have an intelligent understanding of the practical application of these laws, it is necessary to distinguish between the terms *articulation* and *occlusion*, defining them according to their usage by the best accepted authorities on the subject. "Occlusion

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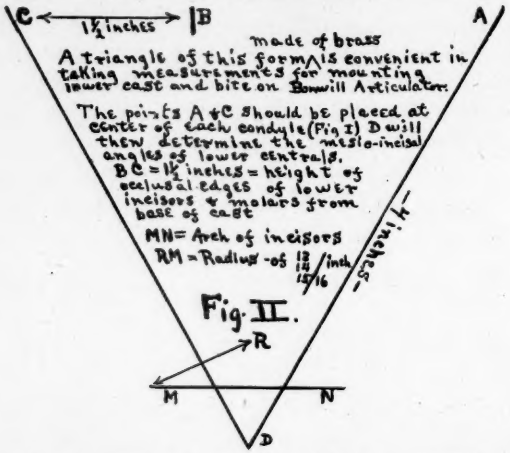
is the impact of the teeth of the mandible against those of the maxilla, cusps to sulci, in a position of rest." (Snow.) Occlusion is not a word of motion but of rest, though its use is permissible, for lack of a better term, to signify the direct closing or hinge-like motion of the jaw. Articulation is the relation of the cusps of the teeth of the mandible to those of the maxilla during the movements of mastication, in which the positions of prehension, attrition and occlusion are represented.

Normal articulation of the natural teeth is the basis of articulation of artificial teeth. The usual method of "setting-up" artifi-


C
1½ inches
B
A
made of brass
A triangle of this form is convenient in taking measurements for mounting lower cast and bite on Bonwill Articulator.
The points A & C should be placed at center of each condyle (Fig I) D will then determine the mesio-incisal angles of lower centrals.
BC = 1½ inches = height of occlusal edges of lower incisors & molars from base of cast
MN = Arch of incisors
RM = Radius of 13/16 14/16 15/16 / inch
4 inches
Fig. II.
R
M
N
D

cial teeth in the construction of artificial dentures takes into consideration but one of the factors in articulation—occlusion, and the majority of articulators on the market even at this late day, forty years after Bonwill's discovery, are capable of but one motion —the direct opening and closing after the manner of a hinge.

The results of his study of over four thousand dead and six thousand living jaws have elicited the following most important facts from a practical standpoint, as proven by their use in his anatomical articulator. a. The average jaws measure about four inches from the center of one condyle to the other, and the same from these points to the mesio-incisal angles of the inferior central incisors, forming an equilateral triangle. b. A circle whose radius varies from thirteen-sixteenths to fifteen-sixteenths of an inch gives the

arch of the incisors of the average lower jaw, the length of which is determined by geometrical calculation. Straight lines connecting the ends of this arch with the basal angles of the equilateral triangles at the condyles are those upon which the bicuspids and molars are developed. (This line is not always straight, sometimes curving inward in the molar region.) The outline of figure 2 represents the equilateral triangle within the jaw, the arch of the incisors and lines connecting with base of triangle. c. The curvature of the ramus upward and backward is in proportion to the overbite, and the depth of the overbite varies as the depth of the cusps of the bicuspids. Figure 6 illustrates these facts, as well as Dr. Bonwill's

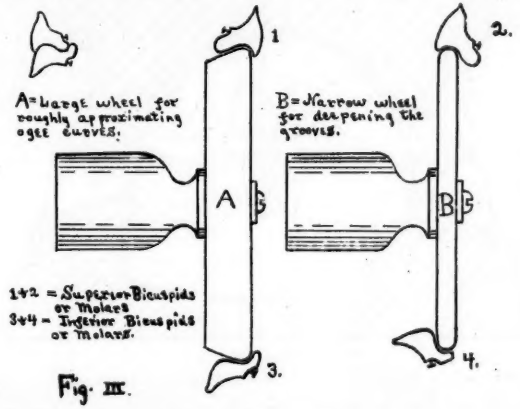


Fig. III.

idea of the diminishing depth of cusps from the cuspids to the last molar. This illustration, as well as some of the others, being adapted from a syllabus on articulation by Dr. George Monson of St. Paul, who is doing a great deal of original work along this line.

In making the lateral motion of the lower jaw to the left, for example, the left condyle acts as a pivot while the right one moves downward and forward in its socket, causing the buccal cusps of the upper teeth, including the centrals, laterals and cuspids to last molar, to touch the buccal cusps of lower teeth, and the lingual cusps of upper to be in contact with lingual cusps of lower on the left side, while on the opposite side—the right—only the lingual cusps of the bicuspids and molars of the upper come in contact with

the buccal cusps of the lower, the right central to the cuspid being thrown out of contact.

With these facts in mind let us examine the Bonwill articulator, which was invented in 1858, and which the inventor did not change in design during a lifetime of practical use, so nearly did it approach the ideal, although within the last few years it has received decided improvements by which the positions of the casts in the articulator are more accurately obtained, and which will allow of very thick casts between the bows, without disturbing their parallelism to any extent. Consisting of a base of brass wire bent to repre-

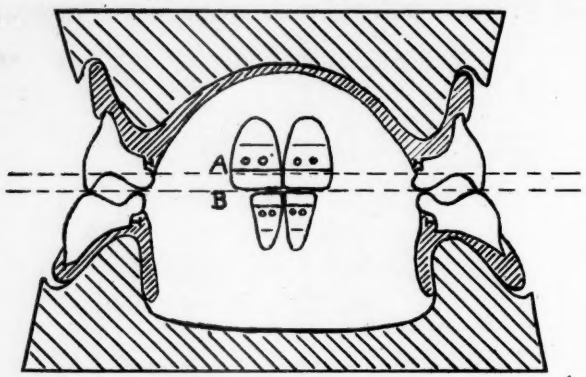


Fig. IV.

Section of casts and plates in bicuspid region looking toward incisors from rear of articulator, showing buccal and lingual cusps of superior 1st bicuspids touching buccal and lingual cusps of lower bicuspids when the incisors are biting edge to edge (molar cusps being in same position as those of bicuspids).

A B is the length of overbite and of cusps of 1st bicuspids, the dotted parallel lines proving the law of the variance of the overbite being governed by length of cusps of 1st bicuspids.

sent outlines of lower jaw, which is hinged at upper part between condyles, with detachable bows, and spiral springs at condyles for allowing of lateral and forward movement, the (Bonwill) articulator has the advantage in its construction of reproducing as nearly as possible the positions of the mandible in articulation, viz., the prehensile, allowing the incisors to meet edge to edge; the various positions in attrition, as in bilateral radiating movements with either condyle as a center, and lastly, that of rest or occlusion.

The downward and forward movement at the glenoid fossa is also obtainable, though denied by some critics. Note all these movements with an articulated denture, always, however, grasping upper

cast firmly and moving lower, with front of casts from you. By examination of figure 1 the manner of mounting the casts by measurement, including the use of the equilateral triangle, may be seen. Figure 2 represents the triangle of four inches, with arch of incisors and lines for bicuspids and molars constructed upon it according to the mechanical laws of obtaining same. By placing the base of this triangle with angles at condyles of articulator which are four inches apart, the apex of the triangle will mark the distance of the median line of bite or mesio-incisal angles of lower centrals, while the distance C—B of 1½ inches determines the height of occlusal

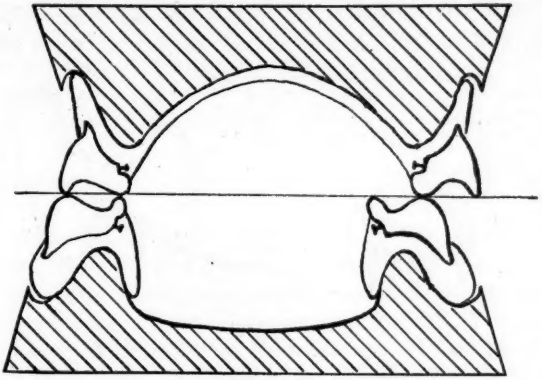


Fig. V.

Section of casts and plates in bicuspid region, looking from rear of articulator toward incisors, when lower jaw is thrown to the left, buccal engaging buccal and lingual engaging lingual, cusps on left side, lingual cusps of upper bicuspids and molars touching buccal of lower on right side. This position of cusps is continuous from 1st bicuspid to last molar.

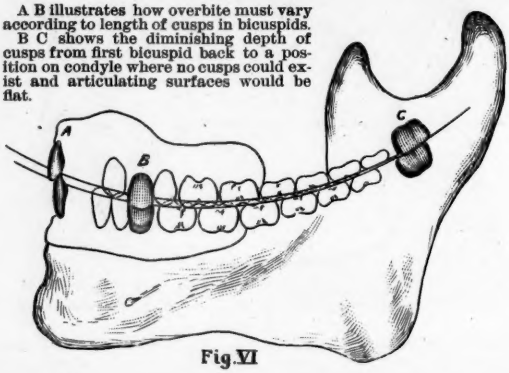
edges of lower incisors and molars from base of cast when mounted, this latter being the average height from the base of body of jaw to occlusal edges of teeth.

The wax bite-blocks should be curved the same as the arc on the triangle, although this form may be changed if necessary to obtain proper fullness after trying in mouth, judgment being used in securing esthetic effects in carving the wax. Having firmly set the lower cast, the upper is mounted and the next step, that of grinding the teeth, is necessary before their arrangement upon the base plates.

In selecting the teeth, if for an upper set alone, you can determine how much overbite the incisors should have by looking at the curvature of the lower molar teeth, if any are present. For exam-

ple, if the curve rises one-eighth of an inch, the overbite should be fully so much, to accord with the law of the variation of this curve corresponding to variation of overbite. If selecting teeth for a full denture the overbite may be variable to suit the other conditions of the case, as when the longer ridge-lap is preferable to the deep overbite. Knowing the overbite, the occlusal surfaces of the bicuspids should be cut out nearly the same depth, diminishing in the molars.

From the cuspids the cusps diminish in depth to the second molar. These grooves should take the form of an ogee curve, which is represented by the one-half of a figure 8 and is well shown in cuts 3, 4 and 5. The outer cusps of the upper are more acute, the inner rounded, the groove being made nearer the buccal cusps, and in the



A B illustrates how overbite must vary according to length of cusps in bicuspids. B C shows the diminishing depth of cusps from first bicuspid back to a position on condyle where no cusps could exist and articulating surfaces would be flat.

Fig. VI

lower set the lingual cusps are acute and the buccal rounded. A large carborundum wheel, figure 3, is convenient for the approximation of these curves, holding lingual cusps of lower to right side of the stone, reversing in the upper, bringing lingual cusps on the left side. The small wheel, one and one-half inches in diameter and not more than one-eighth of an inch thick, with oval edges, is useful for deepening the grooves when necessary for fitting the upper and lower teeth.

The first lower bicuspid should have but one cusp, the lingual being ground off, as it is only in the way of the tongue and has no articulation. All occluding surfaces should be ground, even the incisors, as the rough surface is better than the glaze for masticating, and also produces the effect of natural abrasion. One can save

time by mounting the upper bicuspids and molars in gutta-percha in a straight line and grinding the grooves of all at once, approximating their depth, doing the same with the lower. Any retouching necessary can be done after trying on wax.

The teeth are now ready for setting-up on the wax. If the case is a full upper and lower, the lower teeth may be set up first, securing the proper arch at incisors, and height of occlusal surfaces from base of cast, raising the molar teeth to correspond to the curve of the ramus and depth of overbite. The upper teeth are next set up in their proper position, though it is not essential in this method to secure the interdigitation of the cusps as in the natural jaw, except for esthetic effect. Some operators prefer to first set up the bicuspids and molars, upper and lower, leaving the incisors until the last. It is better to set up a pair at a time, upper and lower, of the bicuspids and molars in order to better see and secure the fitting of the cusps.

At this stage comes the most important part of the whole proceedure, namely, securing the proper relations of upper to lower cusps during forward and lateral movements of articulator. The first movement to be tried is the forward, allowing the incisors and cuspids to meet edge to edge, and at the same time the buccal cusps of upper should engage buccal of lower, and lingual of upper the lingual of lower teeth, as is shown in figure 4. A change of position of some of the teeth, as well as a retouching of the grinding surfaces, may be necessary to obtain this contact. Perhaps the lower molars may have to be raised or lowered on wax, if the curvature is too high or too low, allowing either too great contact or else none at all in this position of prehension. The curve should be great enough to permit of the second molar of lower coming in contact, cusps to cusps, with first upper molar of same side when this movement is made.

In making the lateral movements of lower bow of articulator to the left, for example, the buccal cusps of bicuspids and molars engage buccal, and lingual engage lingual on left side, while on the opposite side the lingual cusps of upper touch buccal of lower at the same time, as illustrated in figure 5. The incisors and cuspids on left side of the median line are in edge-to-edge contact, while on the right side they are out of occlusion entirely. By slight retouching here and there in grooves or on cusps any readjustment

may be easily secured. Always try dentures in the mouth before vulcanizing, as some change may be necessary.

It will be seen that during these movements there are always three or more points in contact, in such positions as to help retain the plates in position, keeping them from tilting; also the greatest amount of surface is obtainable for masticating and the pressure and force on both sides of the arches are equalized, as well as the action of the muscles on both sides simultaneously. In using the articulator to get the lateral movement, one condyle must be kept close to the point where it is held by the spiral spring while the opposite one moves forward. Never use both springs at once, except in bringing the lower jaw forward in incising.

The esthetic selection and arrangement of the teeth must also be considered in this method to secure the best results. Dr. Bonwill advised using different colored teeth and irregular alignment. The law of the depth of the overbite controlling the length of the cusps of bicuspids and molars is well proven in the case of a natural jaw where the incisors bite end to end, the molars then having almost no articulating surfaces, or if originally present, they are soon worn off from the abnormal articulation.

Pyorrhea may be treated more successfully if one understands normal articulation, for abnormal articulation is one of the prominent symptoms of this disease. In operating these laws give us an understanding of the proper articulation of fillings. The law of the equilateral triangle gives us the means whereby we can obtain the true shape of the ideal expansion arch in regulating. In orthodontia there is something more than the proper relation of the occlusal planes of the teeth to be considered, namely, the normal relations of articulating planes, which can be observed only during all the movements of the jaw.

The action of the laws of articulation upon the teeth during and after regulating determine the ultimate position of the teeth, each one assuming a position in which its cusps and inclined planes act in harmony during articulation as well as in occlusion. It would not seem strange if the existing methods of treatment in orthodontia were as much influenced by these laws as the older methods have been by the law of normal occlusion. Articulation then will not only aid in the proper construction of artificial dentures, but will "shed a new light upon every pathway of your practice."

CRITICISM OF DR. TALBOT'S PAPER.

By J. A. Chapple, D. D. S., Atlanta, Ga.

In a symposium on dental education before the Section of Stomatology of the American Medical Association, a paper was read by Dr. Eugene S. Talbot, on "Limitations in Dental Education," in which he gave utterance to some opinions greatly at variance with what we conceive to be well accepted facts. In truth, we are surprised at the pessimistic attitude assumed by the Doctor, and that he should have embraced such an occasion to ventilate the weak and to discredit the strong points of a struggling profession.

If the reader will take the trouble to read the article, he will find that almost every phase of practice and present mode of teaching evoked unqualified denunciation. If the Doctor sincerely believes what he says, we cannot understand how he could afford in justice to himself to remain in a profession (which he denies is a profession) so replete with false and crude methods of practice. As he has "M.D." affixed to his signature, we shall expect, as a logical sequence, to see him drop the "D.D.S." and assume the practice of medicine, where the true etiology of every disease is well known, the modes of practice are correct, and where the practitioner and the undertaker are on terms of most cordial reciprocity. There is, however, some extenuation for the Doctor's extreme views. It must be borne in mind that matters *prehistoric*, and the solution (?) of certain pathological problems have claimed his attention for some time past, and we could not reasonably hope to find him in close touch and sympathy with the kaleidoscopic changes constantly taking place around him. This preoccupation may explain his bilious attitude toward a confrere when he denounces "the pernicious habit of 'beautifying' the teeth by the use of silk threads." It may also account for his inability to "jump the bite." But as Kipling would say, "that is another story."

Time nor space will admit of an extended review of the paper, so a few of the most startling propositions only can be noted. Dr. Talbot says, "limitations of a dental education have prevented the dentist from associating local diseases with systemic causes." When the dentist fails to "associate local diseases with systemic causes," it is chargeable to his own dense ignorance rather than to "limitations of a dental education." From every reputable college rostrum

general pathology, as a prime etiological factor in oral lesions, has been and is being taught to the fullest extent the literature upon the subject will allow. But why should we defend this charge, when at this same meeting Dr. Evans of Chicago declared more eloquently than we can possibly hope to do, "The question is not one of condemnation of the dental course as now existing. * * * Lest there be some misunderstanding in this regard, I hasten to say that in my opinion the average dental course is better than the average medical course. I will even state the matter more strongly. For the average dental student any good dental course is better than is the best medical course for the average medical student."

Note particularly this paragraph—he seems to have anticipated Dr. Talbot—"Unquestionably the past demand has been, and the present demand is, for a dentist who can meet the ordinary questions that arise in the course of dentistry without any special reference to the more *abstruse* or *remote* problems, or the more remote bearings of ordinary problems. This demand is changing and the dentist of the future who succeeds will be somewhat differently educated." With apologies to Dr. Evans, we imagine he intended to convey the idea, in the last paragraph quoted, that while he knew of some who were endeavoring to find the true etiology of a thing, he knew of others who were successfully treating that same thing. Just so. They are to be classed with those theologians who discuss the "etiology" of original sin while their parishioners are going to hell at a 2:40 gait.

When Dr. Talbot further declares, that "Dentists virtually came to a standstill so far as restoration to health was concerned," it is no reflection upon the dentists, though they were M.D.'s. Where iritis is the result of syphilis, does the occulist undertake the treatment of the latter? Where interstitial gingivitis is the result of ptyalism, or of any systemic disturbance, who is better qualified to treat such conditions, the M.D., D.D.S., who perhaps encounters only two or three such cases a year, or the regular practitioner of medicine who is in daily touch with these diseases? Is it a reflection upon the dermatologist to say, "I know nothing of the treatment of typhoid fever?" We would respectfully inquire if Dr. Talbot undertakes the treatment of syphilis where it is an etiological factor in interstitial gingivitis?

After condemning the present methods of filling teeth with gold,

declaring, "It is perfectly absurd to submit the patient to such agony," our severe critic adds: "Under present methods dental technique will never prevent decay." We were not aware that so much was ever claimed for dental technique by even the most extravagant and expert instrumentaltationists (if we may be allowed to coin a word). We have labored under the impression for thirty years that dental technique presumed only to *arrest*, not *prevent* decay. If Dr. Talbot can reverse civilization and throw us back into a prehistoric condition, he may to a degree prevent dental decay; but since we are confronted with a condition and not a theory, we must meet the condition promptly by filling teeth with gold, since experience assures us of a partial success at least, and not keep the patient waiting till we have found out the etiology of the decay.

Now, you college men, who have striven so faithfully and conscientiously to perfect your system of teaching, note this declaration: "The National School of Dental Technics is the last straw on the camel's breaking back; it is the essence of narrowness; it will soon wear out its usefulness and become a thing of the past." Since this organization is but in its infancy, would it not have been the "essence" of propriety to suspend judgment? If, in the judgment of the representative college men, a school of dental technics seems an indispensable adjunct to a better equipment of the student, we prefer to believe that in the "multitude of counsel there is wisdom and safety," the oracle of the windy city to the contrary notwithstanding. There is a rule in the game of whist which says, "When in doubt, play trumps." This rule has been modified in late years, to meet the requirements of the case, to read—"When in doubt what to say or write about, attack the colleges;" and it is done without a second invitation, and with almost a reckless disregard for facts. The clamor for higher education was instantly complied with; the demand for a three-year course was also adopted; and from present indications a four-year course is an assured probability. And now that the colleges of their own volition and not from outside pressure are trying to solve the problem of correct methods of teaching, the initiatory step is characterized as the "essence of narrowness."

We have been slow to reach the conclusion, that however well disposed the colleges have been and may be to yield to popular demand for reform, they unhappily find themselves in the position

of the congressional representative, of whom it was said by some of his constituents:

"You *can* and you *can't*,
You *shall* and you *shan't*,
You *will* and you *won't*,
You'll be damned if you *do*,
You'll be damned if you *don't*."

Dr. Talbot concludes his tirade against colleges by saying, "No wonder that our British and European confreres have such a poor opinion of our dental schools." This expression has been employed and bantered about so often by the anti-college element that some sincerely believe it to be the truth. The intelligent practitioners of Europe know very well the exact status of dental education in America. The opposition that exists was primarily inspired for *self-protection*. It was to check the annual exodus of students to our shores, and the encroachment upon their own individual clientele by American dentists. Latterly Europe has had just cause for complaint, not against reputable schools, but against those hydra-headed institutions in the Doctor's own great city, who have scattered their bogus diplomas all over the world for a moneyed consideration.

Had the good Doctor given more of his time to the "etiology" of the vicious law which made such morbid excrescences possible, and striven for their annihilation, we venture to remark that he would have been spared this humiliation. But hear Dr. Kirk, who recently returned from the Paris Dental Congress: "The defensive attitude of European practitioners against the invidious distinction which the phrase American dentistry implies has unfortunately too much justification in the blatant claims of snperiority with which the advertising American quacks and imposters have flooded the cities and towns of Europe. It is this class of men which has brought discredit upon us, and they are to a large degree responsible for the restrictions imposed upon legitimate American practitioners who would otherwise be cordially welcomed as professional colleagues abroad." Finally, we would direct Dr. Talbot's attention to the recent report of the Foreign Relations Committee, wherein it is said, "It is true that even at home there may in uninformed circles be found some remnants of an unworthy professional jealousy, a failure to comprehend the real educational situation, and a tendency to attribute to our teachers motives unworthy an honest man."

Dr. Talbot has contributed much of value to our literature, and is correspondingly appreciated, but the Section of Stomatology of the American Medical Association is not the House of Lords, whose exclusive atmosphere impels antagonism to all such laws and usages as may have their origin in the House of Commons.

REFLEX LESIONS OF THE ORAL CAVITY ASSOCIATED WITH PREGNANCY.

By F. A. M'Auley, D.D.S., Cleveland. Read Before Northern Ohio Dental Society, June, 1900. Printed by Courtesy of Ohio Journal.

In selecting this subject it is not my object to cover the field nor to tell the number of lesions which are caused through the reflexes during utero-gestation, but to trace so far as possible the sympathetic relation and certain disorders of the teeth, depending upon functional disturbance or structural lesions located in some remote part of the general organism, promising that a better understanding of the laws of reflex action and a more familiar acquaintance with nerve function and a clearer insight into the reciprocal or mutual relation, existing between widely separated regions, would lead to a more trustworthy view of the causes of sympathetic disorders of the oral cavity, the origin and nature of which we as professional men know little about.

The thought which occurs to the profession, both dental and medical, is that as utero-gestation is an undisputable physiological act it would not give rise to such irritation as would produce sympathetic affections of the teeth, and this would undoubtedly be true if the uterine functions were normally performed, but as the reproductive act is a usually conscious one, we are led to the conclusion of functional derangement, for the senses are oblivious to the normal processes of organic life. Therefore, no person in perfect health is supposed to have, through the medium of common sensation or mental perception, any knowledge of a brain, heart, lungs or uterus. The frequency of oral disorders, associated with pregnancy, is in itself a presumptive evidence of a general disturbed uterine function more or less severe in character. Let us examine into the general accepted theory of certain pathological states of mouth during gestation. The universal view is that there is more decay of the teeth during this period, which is due to the increased consumption of lime-salts incidental to vital

growth and development, and this superadded draft upon the calcific elements of the material circulation, by divesting the lime-salts from the teeth, impairs the integrity of the latter, producing a nutritive lesion characterized by diminished ossific deposits, and a corresponding domination of animal constituents, thereby producing a softening condition rightly supposed to favor decay. From this theory it would seem that the assumption of the bone-producing elements supplied by the ingesta are in the unimpregnated state largely if not wholly appropriated by the tissues into which they enter as a component, that there is not ordinarily any adequate provision for the excessive demands of a process of a Divine ordination, and when the exigency occurs it becomes a simple question of division between the mother and fetus.

H. J. Weiske—The Substitution of Strontium for Lime in the Animal Organism.—Haselhoff theorizes that J. Koeing's researches prove lime can be substituted in the animal organism. H. J. Weiske, on the contrary, notes that while strontium passes into the organs—flesh, bones, etc.—a physical organic replacement can not be supposed. The administration of strontium is therefore physically unimportant. Does the continuous administration of acid mineral salts have an influence on the composition of bone? The author has previously shown that by continuous administration of dilute sulphuric acid to a food composed of hay and cereal, not alone the bones of the sheep suffer a noticeable diminution of mineral ingredients, but also the lime in the flesh of such an animal is influenced. According to Hintzman, as well as Hofmeister and Seidamgrotzky, lactic acid acts likewise. Weiske has also found that administration of acid mineral salts, such as monosodium phosphate, acts likewise. Only on teeth a difference could not be determined.

Influence Which the Addition of Different Salts to Food Has on the Body Weight and the Composition of the Bones and Teeth.—The action of $CaCo^3+NaPo^4=Ca^3(PO^4)2+Na$ citrate acid was steadier as compared with monosodium phosphate. The important result of this extensive and tedious research was that oats alone as food, with the addition of $CaCo^3$, favorably influenced the development and composition of the rabbits' bones. The other salts conducted themselves indifferently or injuriously. The teeth here were less influenced than the bones, and, of the bones, the flat and the spongy the more.

G. Kobler—On Osteomalacia.—Examination of the ash of the blood from cadaver of a case of osteomalacia.

	Osteomalacia.	Normal.
P_2O_5	7.25	8.49
SO_3	16.04	6.85
Cl	19.925	29.59
K_2O	34.16	25.565
Na_2O	9.35	23.169
CaO	0.35	0.872
MgO		0.512
Fe_2O_2	12.85	7.86

Strontium can not physiologically replace calcium in bone composition. This was held by Koeing and others. According to Riidel, on the absorption and excretion of lime salts in rachitic children as a criterion for the absorption, the lime excretion through the urine was taken for twenty-four hours, according to Newbower, with ammonium oxalate and acetic acid, and the oxalate weighed as sulphate, The research, conducted mostly on children, in the case of calcium oxid the lime in the urine increased from eighty to one hundred and twenty-six per cent, therefore almost double of the amount administered only one and three eight-hundredths per cent passed into the urine. Sodium phosphate diminishes the normal lime excretion one-third or even one-half. On the contrary, the addition of HCl caused a slight increase in that excreted. Showing of intestinal peristalsis increases lime absorption. Injections of calcium acetate, rabbit or dog, twelve to thirty-four per cent appears in the urine again. Children were fed regularly with milk and bread and the calcium determined in the daily urine. In normal children variations occurred in the excretion within the limits of .002 to .005 CaO per kilogram. A milk with a specially high phosphoric acid can not be obtained by the giving of calcium phosphate with the food. In the case of a milch cow a slight increase in phosphates in milk is attained only after three or four weeks of continuous administration of phosphate feeding.

Voit says calcium increases with increased administration, it however represents but one to six per cent of that administered. While this might account for the increased sensitiveness of tooth bone due to mechanical or chemical stimuli, where decay exists it is hardly competent to explain the severe and distressing pain in teeth with

unbroken structures, which is clearly distinguished from hypersensitiveness, nor does it in any manner explain the various neuralgic affections coincident with impregnation. We will have to look farther for some rational solution of the causation as it relates to the oral phenomena with the reproductive processes. I believe a more plausible and defensible theory is due to the reflex lesions, structural or functional. In support of this theory I shall first ascertain if the organs of the mouth constitute an area correlated to the uterus through a medium of a sympathetic system of nerves.

The cerebro-spinal nerves are sent out from their centers in divisions or companies of seven, and each company acts together and serves a common definite physiological purpose. These divisions are:

	Strands of cerebro-spinal nerves.	Distribution.	Associated ganglia of sympathetic.	Main distribution.
Area 1,	Trigeminus, facial, etc.	Face and its orifices, anterior scalp.	4th cerebral.	Head.
Area 2,	Upper 4 cervical.	Occipital region, neck.	1st cervical.	Head, slightly to heart.
Area 3,	Lower 4 cervical and 1st dorsal.	Upper extremities.	2d and 3d cervical and 1st dorsal.	Heart.
Area 4,	Upper 6 dorsal.	Thoracic wall.	1st to 6th dorsal	Lungs.
Area 5,	Lower 6 dorsal except last.	Abdominal wall upper lumbar, upper lateral thigh and surface.	5th to 12th dorsal.	Abdominal viscera, testes, ovaries, fundus uteri and renal plexus.
Area 6,	12th dorsal and 4th lumbar.	Lumbar region upper gleuteal anterior and interior thigh and knee.	1st to 4th lumbar.	Pelvic organs.
Area 7,	5th lumbar and 5th sacral.	Lower gleuteal posterior thigh and leg.	1st to 5th sacral	To pelvic organs and sympathetic supply being small.

With this division of the seven cerebro-spinal strands of nerves it is very easy to understand the causes of neuralgic pains associated with gestation. Consequently, if the disturbance in the pelvic

region were such as to produce a slight irritation, the reflex lesion of the pulp would manifest itself as a so-called sympathetic neuralgia caused by the pressure of the nerve fibres by an engorgement and distention of the blood-vessels. Sympathetic neuralgia of the sound or unsound teeth, which is very commonly associated with pregnancy, can not rationally be accounted for except in the manner here indicated.

In conclusion of this paper let us apply facts in explanation of the phenomena of softening and more rapid decay of the teeth during gestation. The lesion is purely a reflex one. Anything like habitual hyperemia of the vessels of the pulp that must, by altering or diminishing the blood-supply, more or less interfere with the nutrition of the teeth, would be in the direction of degeneracy or retrograde metamorphosis of tooth structure. The defective assimilation of ossific matter for the purposes of repair, and certain diminished vital resistance to action of agents operative in producing solution of lime-salts. These are frequent complications coincident with pregnancy and are always more or less distressing and harmful and often involve the loss of valuable organs. This subject is therefore one of great interest to us as oral specialists.

SHAPING PLATES TO DIES BY MEANS OF RUBBER.

By Dr. E. L. Patchen, Cleveland. Before Northern Ohio Dental Society, June 7, 1900. Printed by Courtesy of Ohio Journal.

When you have an upper plate to shape or swedge, and have obtained the right kind of metal for the die, and have traced out the rugae, and scraped here and there, having provided for your turned-up posterior edge, and your die is obtained, you will be ready to do the shaping. When you have obtained at the rubber store two pieces of rubber known as the car-spring variety—No. 1, 3¼ inches square, No. 2, 2½ inches square, each one inch thick, you will need a medium-sized crutch tip, filled about half full with a piece of tough rubber. Also get a strip of all-rubber packing half an inch square by 15 or 18 inches long. This is the piece which forms the rim and is used last. You are now ready to shape No. 1 rubber to the die, making it the shape of a counter-die, except that it should lap over about half an inch all around, and be about half an inch thick at the crown of the gums. You can easily shape this in two minutes with a knife. You will shape No. 2 as a lingual

holder so it will be large enough to cover only the lingual surface. This should be somewhat the shape of the other. These pieces, Nos. 1 and 2, can be used many times with only slight changes. You are now ready to anneal your metal plate and place it upon the die. Put this in your flask press, place No. 1 upon it and bring it down quickly and firmly. You will find that the metal is spread out under your rubber and conforms to the die. Now take your machinist's hammer and pound down the exposed rubber, but not too hard this time. Push down the plate which is to form the rim and mark it. Then release it and cut size of plate, being careful not to bend it much. Put tip cushion upon the small end of hammer and steady plate upon the die; strike hard blows upon the plate and you will see it settle into place very readily. Place No. 2 upon the plate, apply the pressure, and take a horn mallet and drive the rim into place, being careful not to lap it. Now release it and put No. 1 on, turn and pound down tight; then take your packing-rubber and shape like a loop, pass it around the metal plate and up next to lap of No. 1 rubber, through the uprights of the press, gather the ends with the left hand, tip die back onto solid surface and pound down hard. Your plate is now down upon the die, or if you think not, anneal. Put it into the Parker swedge-block and pack small bits of rubber about as small as B. B. shot upon it, same as shot in that method. The rubber should be quite firm. I prefer the very hard plumbers' balls or rubber corks. The hardest place to bring it down is at the rim of the plate, especially if there is an undercut, but the horn mallet will help you out. This method is especially valuable with aluminum. If you are careful it need take but a few minutes to complete the metal, as the finish is as good as when new. Buy the 22 gauge. In using the rubber and Parker method come down very hard.

Wire As a Permanent Substitute for Bone Defects of the Jaw. *Centralb. f. Chirur.* C. Hofmann.—A piece of stout silver wire passed through the stumps of the bone after resection and the ends woven together, forms a remarkably simple and reliable means of substituting defects in the jaws or long bones. It can be bent to adapt it to the exact shape required. A wire is preferred that has a core of a less flexible metal than silver. The wire prothesis has proved a perfect support in a case in which it was used to substitute a missing portion of the tibia 6 cm. long. also in a case of extensive necrosis of the lower jaw. The teeth fitted accurately together and the outline was normal.—*Jour. A. M. A.*

Digests.

LEONTIASIS OSSEA. In the September *Medical Chronicle* Mr. W. H. Stephenson of Manchester describes a case of the rare disease. The patient was a man 27 years of age. When 18 years of age he noticed for the first time a slight hard painless swelling on the left side of lower jaw which had been gradually increasing in size ever since. About 16 months ago a similar swelling had commenced on the right side of lower jaw and had gradually increased in size, but was not accompanied by any marked pain. During the last twelve months he had noticed that the bones of his nose had become markedly increased both in thickness and breadth —left side rather more than right; left nostril had become almost occluded. During the last two months he had suffered at various times with severe neuralgic pains in lower jaw, especially on left side, the pain extending up the left side of his face almost to the temple. Otherwise he enjoyed good health and was able to follow his usual employment. His family history appeared to be very good. Mr. Stephenson found the whole of the lower jaw thickened and hypertrophied, especially the left half, and on examining the interior of the mouth the broadening and thickening of the alveolar margin were seen to be marked. The teeth appeared to be somewhat small. The nasal bones were considerably enlarged and the left nostril was almost occluded. The superior maxillæ were slightly enlarged and there was a distinct bulging of the left frontal eminence. All the other bones appeared to be normal, except that the patient suffered from slight genu valgum of the right leg. Two portraits show a man of intelligent aspect, with regular features free from disfigurement, although the fullness at angles of jaw is noticeable. Leontiasis ossea was first described by Virchow and by the late Sir James Paget. It is a hyperostosis distinguished from acromegaly by being confined to the facial or cranial bones.

* * *

REINFORCING A CONTINUOUS GUM SET OF TEETH. By Dr. J. B. Beauman, Columbus, O. There are some things essential to a successful set of continuous gum teeth. First in importance, it should be so constructed that it may have the required strength to withstand the strain of mastication; a good

adaptation to the mouth; perfect articulation, etc. In swaging, I have of late years gone back to the zinc and lead dies, and find them more satisfactory than the Babbitt metal and lead. If the zinc is not too hot when poured, nor the sand too wet, a beautiful die is the result. The zinc die should be burnished so that it may not mar the platinum plate. When the plate is swaged and ready for the rims, take a piece of square platinum and iridium wire, roll it to flatten a little, then with a file bevel one edge and solder narrow surface to the plate, having wire extend round the entire rim of plate, with bevel extending to catch the edge of porcelain. When rimmed, try plate in the mouth, and if it requires reswaging, swage in the shot swage and not in the lead die, as in so doing one is apt to tear the plate and draw rim out of place. Get articulation over the plate, set up the teeth, and invest in equal portions plaster and white lake sand. When the plaster has hardened, remove wax, straighten up pins, take platinum and iridium wire and bend it close to the teeth, fitting under the pins of teeth close up to pins. This wire should also be rolled to flatten, so that it may not be bulky when the pins are bent down over it. This bar or wire must be bent down and flattened at the ends to rest on the plate—to be soldered to it.

While in this condition take a small bur and drill holes through the plate for the small wire stays. A light square wire is preferable for these pins—point and round end that goes through the plate and flatten end that rests on the bar above. If one does not wish to drill through plate, flatten end of pin and bend at an angle, forming a small foot to rest on the plate. When the holes are drilled, or the plate marked to locate the pins properly, notice that these posts come between the teeth, forming a net-work for the body to interlock, which makes a very strong plate.

At this point place a pin between the two centrals, and after heating up case, solder ends of wire bar to the plate with a little pure gold—also the pin between centrals, to hold it in place for further soldering. When cold remove from investment, and the pins of teeth not having been soldered, the teeth will come away and the plate will be free from investment while soldering the pins or stays to the bar and plate. For soldering the pins and bar to the plate and the rim, use a solder composed of three parts pure gold and one part platinum. In making this solder, first melt with the blow-pipe and then remelt with the arc current to thoroughly mix the metals.

Do not allow it to remain under the current for more than an instant or the gold will evaporate. When all the pins are soldered to bar and plate, grind off those that go through plate (in case you have drilled through it), which removes all traces of the plate having been drilled. It is now time to reset the teeth and invest again to solder the pins of teeth to bar and plate, in case pins touch plate. In soldering the pins, use a ten per cent platinum solder, melted as the other. If the teeth come too close to the plate to prevent putting the net-work of wires under them, solder heavy square platino-iridium wire on top of plate and bend pins down over it. Where there is room for the upright pins, the porcelain body will interlock in such a way as to make it very strong. Where pure gold is used to solder the work, it spreads over surface of plate and prevents the porcelain from adhering to it.

A plate made after this plan will endure much more strain than the old way of flat backing. The body will interlock so that to spring the plate we should have to crush the porcelain between the pins. In putting on the body and enamel one cannot be too careful. There are few who know how sensitive all kinds of porcelain are to chlorid of sodium (salt) or any saline substance. Never wash a plate with porcelain on it with a brush that has soap or anything of the kind about it. If one desires to know the effect of salt on the porcelain, put a few grains in the water the body is mixed with and the result soon appears. Great care should be exercised where there is danger of any contamination. Keep the body and enamel perfectly clean. In putting the body on plate, fill it up as desired, dry out well with a clean napkin, and if great care is taken the enamel can be put on as well before baking as after. Do not bake to a full bake the first time. It will crack and all that is necessary will be to fill up the cracks and imperfect points for second baking. Bring it to a full bake the second time, and should there still be imperfections, fill up and bake over. If care is taken it will rarely be necessary to bake the third time. After being fully baked, each successive baking weakens the porcelain. The porcelain should not be over-baked, and at the same time should be fully baked, that it may be as dense as possible. Porcelain left in a porous condition will absorb the saline fluids of the mouth, and should repair be required at any time, rebaking will cause it to crack, become porous and rough, and perhaps ruin the plate. No chemical and no

amount of baking will eliminate this saline influence, but to soak in hydrochloric acid will help it. It is not advisable to make the plate lighter than twenty-seven gauge. Economy in platinum is scarcely advisable, as one may have to repair in a short time and perhaps put on a new set of teeth, which is discouraging to both one's patient and one's self.—*Ohio Journal, Nov. 1900.*

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FUNGOUS GROWTH OF THE PULP. By Julio R. Martinez, D.D.S. Marion J., a mulatto woman, twenty years old, came complaining of a very sore tooth—the second right lower molar—which presented a cavity of decay occupying the whole masticating surface and also portions of the buccal and labial surfaces. The bulk of this cavity was completely covered by an hypertrophied pulp, which had a highly congested appearance and was rather spheroidal in form. According to patient the growth had started two years ago, when by decay the pulp was exposed. At first no appreciable soreness was felt, but later on it became quite troublesome, especially whenever food was introduced in the cavity or pressure was exerted during mastication.

As the only way to get rid of the growth, I proceeded at once to remove it. After isolating the tooth with the dam, I applied some crystals of trichloracetic acid and allowed them to remain for five minutes. Then by means of a sharp spoon excavator I removed the growth from its base. Next I wiped the cavity with phenol-sodique and applied a dressing of iodin to the remaining portions of the pulp, sealing the cavity with a temporary stopping of gutta-percha. Three days after I renewed the iodin dressing, and a week later I was able to remove the rest of the pulp almost painlessly. The canals were cleansed by means of sterilized broaches followed by injections of a three per cent solution of hydrogen peroxid, and a temporary dressing of iodoform and oil of cloves was sealed in the canals. A week after, as the tooth seemed to be in a healthy condition and the dressing was clean, I filled the canals with oxychlorid of zinc, after having washed them again with hydrogen peroxid, followed by absolute alcohol and warm air, in order to insure complete dryness; and three days later I placed a permanent filling of amalgam in the cavity. I saw the patient four months after she was dismissed, and learned that she had not felt the least pain or discomfort since the treatment was completed.

FUNGOID PULP. By Walter W. Barton, D.D.S. John D., aged eleven years, presented to have his upper anterior teeth regulated. Upon examination it was found that all the first molars were badly decayed. The upper left first one had a large cavity on the morsal surface which was almost completely filled with a red, spongy tissue, which had no connection with the lateral walls of the tooth and was diagnosed as fungoid pulp. This was caused by exposure of the pulp by caries, and followed by continued irritation, which produced a low form of granulation tissue peculiar to this growth. This was somewhat sensitive, but not to the same degree as a healthy pulp.

The prognosis being favorable, the cavity was washed with a three per cent solution of hydrogen dioxid and crystals of iodin packed around the bulbous mass, but they could not be sealed in. The case was treated twice each week, and at second sitting the pulp was greatly reduced in size. After applying dam the cavity was again washed with hydrogen dioxid, and iodin crystals were sealed in with gutta-percha and gentle pressure used.

This treatment gave no pain, and at next sitting all the bulbous portion of the pulp was absorbed. This was followed by two applications of carbolic acid and iodoform, when the pulp-canals were entirely cleansed and a dressing of the same was placed in the canals for a few days. There being no putrescent odor at the end of a week, the canals, which were not closed at the apex, were filled with gutta-percha, the tooth was lined with oxyphosphate, and the remainder of the cavity filled with amalgam. This treatment took three weeks.

FUNGOID PULP. By R. L. Gooding, D.D.S. Miss C., aged ten years, came for treatment. On examining her mouth I observed the teeth were very irregular and carious, and in the right lower first permanent molar there was a cavity of considerable size, the lingual and distal sides of which were broken down, and a clear case of polypus or hypertrophied pulp presented itself. The case was diagnosed as being one of that character, and I proceeded with my treatment. To apply the dam was impossible, so resort had to be made to the napkin. I isolated the tooth as well as possible and applied trichloracetic acid crystals, burning off a great portion; then with bur and excavator removed as much as possible. At this

period of the operation patient was getting faint, so I concluded by placing in the cavity cotton saturated with iodin and a temporary stopping.

Two days later the previous dressing was removed and arsenic fibre was applied, and Robinson's remedy, hermetically sealing the cavity. Her next visit was four days later, when I found that the arsenical application had had no effect, and the part was exceedingly painful and congested, so I applied acetate of morphia and oil of cloves, and had her return in four days. This time I made an application of a double dose of arsenic, using the crystals along with morphin acetate and oil of cloves. The next day I removed this and found that death of pulp was complete. All putrescent matter was removed, the canals thoroughly cleaned in the usual manner, and a dressing of Black's 1, 2, 3 placed in. Patient returned at frequent intervals, when I renewed the dressing, and five weeks from the beginning of work, finding the conditions perfectly healthy, I filled the canals with oxychlorid of zinc and the cavity with amalgam.

[REMARKS. There is a general feeling prevalent in the profession that it is a hopeless waste of time to treat fungoid or hypertrophied pulps. Until recently teeth thus affected were universally condemned to the forceps. Various methods have been devised to destroy this character of pulp, but only with limited success. Some years ago Dr. Maercklein announced that they could be removed by the application of crystals of iodin. This was tried in the Dental Department of Univ. of Penn., with some modifications, and found to be very satisfactory. The papers given were cases in that clinic. These were selected from a number as typical of the method at present used. EDITOR.]—*International, Nov. 1900.*

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EPULIS AND RANULA. By E L. Clifford, D.D.S., Chicago. Between these two there should be no difficulty in making diagnosis, yet in a recent number of this journal a physician, after diagnosing ranula, simply stated that "a small tumor appeared on the lower gum." This is not sufficient for the specialist. The exact location of that tumor is of great import. Is it outside or inside the alveolar ridge? Does it originate from the gingival border, or from between two teeth, and if so between which teeth? What is the condition of the nearest teeth? Is it possible that the tumor arises from a dental

pulp? Are there any retained roots in the vicinity? Are the teeth regular and clean, and all erupted that should be at that age? Are any of the deciduous teeth retained too long?

If an epulis, it should be of slow growth, painless, of firm fibrous tissue, covered with the gingival mucous membrane. In form it may be sessile or pedunculated, usually the latter; in size, from quite small to a man's fist. Fibromata associated with the gums and teeth occur frequently. The simple fibroma is the most common, and it rarely reaches a size larger than a walnut; usually occurs early in life, and is rarely seen after the thirty-fifth year.

Ranula is a retention cyst of the ducts of the submaxillary or sublingual glands, cysts of the parotid occurring so seldom as to be almost excluded. A ranula is a collection of salivary fluid in the excretory duct, commonly in the floor of the mouth, beneath the tongue, in size from a pea to a pigeon's egg, though it may be large enough to crowd the tongue into the fauces and threaten suffocation. Its walls may be thick or thin, and the swelling hard and firm or soft and fluctuating. When the walls, however, are thick and hard it indicates a growth of long standing and inflammatory thickening with contents greatly changed from the normal secretion; while a thin, soft and fluctuating swelling is evidence of a recently formed cyst with a fluid more nearly approximating a normal secretion. In other words, the contents of the cyst will vary in character according to its period of existence.

Ranula is more frequently seen in adults than in children. The causes of ranula are contraction or stenosis of the excretory duct, or cicatricial obliteration due to traumatism or inflammatory processes, or to the presence of foreign substances within the duct. A positive diagnosis may be made by the introduction of an exploring needle.

As to epulis, Virchow recognizes two forms, the hard and the soft. The term is given to growths of all forms which appear from the gum, but its use is generally restricted to the periosteal form. Microscopically it may contain round cells but is more commonly composed of spindle cells. Giant cells are also found in these growths in connection with the round or spindle cells. The hard variety contains a large amount of fibrous tissue, a few cells, and giant cells are seen scattered between the fibers. The soft variety is quite vascular. Absorption of the blood leaves pigment granules

behind and gives the tumor a brownish hue. These tumors are designated pigment-epulis.

The prognosis of fibroma of the gum is favorable. The tumor is benign, but if of long standing sarcomatous degeneration may set in, consequently the opinion in such cases should be guarded until a positive diagnosis can be made by the microscope. In simple fibroma recurrence does not take place after excision.

In treatment, local remedies which stimulate the absorbents are worse than useless. They only cause irritation, and irritation may result in sarcomatous degeneration. Radical cure can be effected only by excision of the alveolar process; which, followed by local antisepsis, comprises the entire treatment. In two cases, of recent origin and well pedunculated, I have succeeded with strangulation by means of silk ligatures placed as close to the gum as possible.

In ranula recurrence is the rule unless a permanent orifice to the duct can be established or the gland removed. The treatment is to establish this orifice artificially, which shall answer the purpose of a normal apparatus, and it can be secured only by surgical procedure. The use of stimulating applications to inner walls of cyst is to be deprecated. They are unnecessary, will cause great cell-proliferation, and nature very soon reduces the expanded duct after establishment of patulous openings.—*Alkaloidal Clinic, Oct. 1900.*

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SHOULD THE DENTIST USE THE MALLET? By E. W. Wooley, D.D.S., Winona, Minn. I have been surprised and disappointed to see so many operators of good reputation who require their assistants to do the malleting, and I would like to ask the profession some questions and offer some suggestions. Are there any reasons why a dentist should not do his own malleting, except that it is not easy to learn? If there are no other reasons, is it not to be regretted that this method is so commonly ignored? Who will claim that two hands on different bodies can be coordinated to work with the accuracy and precision possible by two hands on the same body? Do we need more fingers or less thumbs? And if the left hand is all thumbs, is it due to anything but lack of proper training?

I believe that malleting requires quite as much skill as holding the plugger, and the man who is well skilled in doing his own malleting has an advantage in the coordination of his two hands that

can only be approached by the other method, however skillful the assistant. He strikes when and where he wishes, as fast or as slow as he pleases, and does not strike when or where he does not want to. He won't nail a piece of gold down with one hand just as the other is about to fold it into another position. One hand understands the other. The varying positions of the plugger as it moves on and off the enamel-margin and changes its angle of direction require delicate and quick-changing transitions in the force and frequency of the percussion; and where the same volition prompts the action of both plugger and mallet there is no discrepancy between them, which means greater facility and better results. The discrepancy between two operators on one instrument will vary according to how well they are trained together, but in some degree is an ever-present impediment. So, however well skilled, the two can do less in this manner than one who is expert with the plugger in one hand and the mallet in the other, to say nothing of the further advantage of having the assistant free to do the minor parts of the operation, such as feeding gold, holding ligatures, etc., which will save the operator much time without affecting the quality of work.

The helper, by carrying shingles for the carpenter, or brick and mortar to the mason, has no effect on the quality of the work, though without him the mechanic would require double time to accomplish the same results. The mechanic, whether carpenter, mason, shoemaker or blacksmith, knows that the hammer affects the quality of his work, and he handles it himself.

If it were too much for one man to hold both hammer and nail, then it would take two men to make one carpenter; and when I see a dentist who, for the want of his regular assistant, is handicapped in the quality of his work, I can't help thinking that he is something less than a finished dentist, or that with him the division of labor is carried to a ridiculous extreme. My first preceptors, though without college training, handle gold with an ease and facility that I have yet to see equaled in other methods. They do their own malleting, use small cylinders, and small, straight pluggers, securing the maximum of density and the minimum of excess gold to be dressed off in the finish.

The assistants of course feed the gold while the operators manipulate and condense it without interruption. Large approximal contour fillings in posterior teeth may be dressed flush and nicely

finished at the gingival margin, even in a concave surface, by the use of an inclined disk, if it is done at the proper time, say when the gold is built up about a line from the margin and before proceeding to contour. But how can it be done after the contour has closed off access to the margin?

If files and scrapers are too crude to use in finishing a margin where results can be seen, disks are closed out, and strips will not effect a depression, if they could be applied to the mesial of a back tooth, what are we going to do at this vulnerable point, which requires the finest work though it is not to be seen? This method of finishing the gingival margin before putting on the contour is so simple and practical that it requires no extra effort or appliances. When a farmer is building a fence he usually knows enough to hew a knot off from a post before he nails the board over it. Is there any better comparison?

All through the domain of mechanics great results are accomplished by a combination of genius with thorough manual training, and the constant pressure of practical application squeezes out incompetency; while "fake, fad, and fashion" are never let in. In the professions it is different, and though dentistry is largely a mechanical art, too much genius is assumed and manual training is dispensed with. We are not only diluted with "fake, fad, and fashion," but patent-leather, plug hat and pomposity stalk abroad among us like a cock in the barnyard whose crow is heard abroad, while the quiet hen industriously feeds her flock. Consequently there is much to detract from the best practical methods, which require close attention and thorough training.

Mathematics teach us that no progress is possible in true science which is not consistent with logic and physical laws, yet there are different ways of getting a reputation; and if fortune favors a man with prestige and high position, his methods are sought after regardless of these principles. Now, for an instance and illustration, I have in mind a recent clinic given by a very prominent member of our profession who condenses gold by use of the hand mallet. I expected to see him demonstrate the use of the hand mallet, and was disappointed, for he did not use the mallet at all. He held one end of the plugger while "Tom, Dick, and Harry" malleted on the other end in their turn, and each with a gait of his own. The cavity was mesio-occlusal of the upper right first molar, which

affords direct, easy access. They worked a half-day, but a good deal of time was required to dress off excess gold, and I was surprised at the quantity of disks and vaselin used. I wondered why the operator did not dress the overhanging excess at the gingival margin before covering it with the contour, but was astonished when he finally left it there with the announcement that Dr. So-and-so at some future time would fill a cavity in the adjacent tooth and incidentally finish *his* operation. Then the occlusal and more accessible surfaces were finished with a shining surface, unrelieved by ridge or sulcus, and the spectators stood and expressed their admiration like so many novices. Had I not seen my preceptors perform similar operations more expeditiously by doing their own malleting without an assistant, and still better, with the assistant feeding the gold, I might have been more appreciative at this clinic. It was remarked that the doctor was under great disadvantage in the absence of his regular assistant, and that in his own office he could do a similar operation in one-third the time. Then it would appear that it takes two to make a dentist where these methods are employed, and as often as they are separated excuses are in order for the results of the work. But the man who does his own malleting has no such excuses, especially when surrounded by supplies from two or three depots.—*Cosmos, Nov. 1900.*

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EMPYEMA OF THE ANTRUM OF FIFTEEN YEARS' DURATION, DUE TO A FOREIGN BODY; OPERATION; RECOVERY. By Arthur B. Duel, M.D., New York. Mrs. S. C., thirty years of age, consulted me September 1, 1898, presenting the following history: In March, 1884, while having a right upper molar extracted, the tooth was broken and the jaw splintered. In rinsing the mouth immediately afterward fluid escaped from the right nostril. A few days later a purulent discharge began from the alveolar wound. The dentist was again consulted, and removed several small spiculæ of bone, after which the wound closed. A week later a purulent nasal discharge made its appearance. This gradually grew more and more profuse and very offensive in odor, and the patient's general health became greatly impaired. In August of the following year a hole was drilled into the antrum through the alveolus and daily irrigations practiced for six weeks, when the discharge stopped. In a short time, however, it began

again. Another specialist was consulted, who inserted a silver drainage tube and continued the irrigations. This soon proved so irritating, however, that the patient removed it of her own accord, and obtaining a syringe which she could use herself, for a period of more than five years irrigated the antrum daily through the opening which remained. During this period the discharge was never very offensive, though at times quite profuse.

In February, 1900, the discharge not having been present for a month, the alveolar opening was allowed to close. From 1890 to 1895, at intervals of from three to four months, an offensive discharge from the ostium accompanied by a dull pain over the antrum and by frequent headaches lasting from two to six weeks, occurred. The patient attributed these attacks to "having caught a cold." At no time was she free from an offensive odor in the right nostril, and a sensation of pressure and dull pain at the ostium. In 1895, owing to an acute exacerbation, an attempt was made to secure better drainage by removal of a portion of the turbinate body. This was followed by a more profuse discharge and severer pain than had occurred at any time previously. A year later another surgeon removed more of the turbinate, secured free drainage through the ostium, and by irrigations through this channel relieved the patient of acute symptoms, although the discharge continued for several months. During the year 1897 there was practically no discharge, although the offensive odor was always present. In the spring of 1898, a short time before the patient came to me for treatment, all the previous symptoms appeared more violently than before.

The patient was emaciated and anemic. She complained of a dull (sometimes acute) pain over the right antrum, frequent headaches, sleeplessness, loss of appetite, constipation. On examination, thick, foul pus was found to be exuding from the ostium, which was fairly free as a result of the previous operation on the turbinate. There was tenderness on deep pressure over the antrum. Transillumination showed a dark area over the antrum and under the eye on the affected side, and absence of the pupillary reflex on that side. I advised a radical operation, to which the patient readily consented.

On Sept. 8, 1898, under ether, the upper lip was everted and raised, and an incision about one inch long made at the angle through the mucous membrane and soft tissues down to the bone.

With a periosteal elevator the soft parts were pushed back, exposing the cuspid fossa. With a small trephine a button of bone was removed over the lower portion of the cuspid fossa; an incision was then made through the lining membrane, which was found to be very much thickened. Nearly an ounce of thick, foul pus escaped. The opening was then enlarged by a rongeur forceps until it would admit a finger for exploration. While irrigating the cavity previous to exploration, a calculus of the size of a pea was washed out. This calculus, the crust of which was made up largely of inspissated pus, had for a nucleus the root of a molar which had been forced into the antrum by the dental operation nearly fifteen years previously. The thickened lining membrane was thoroughly curetted, and the cavity packed with iodoform gauze. This was renewed daily for four days, when a large rubber drainage tube was inserted and the cavity subsequently irrigated once daily with a weak solution of formalin. In a week there was practically no discharge. At the end of three weeks the tube was removed and irrigations stopped. In four weeks the lower opening closed. The odor entirely disappeared, all symptoms rapidly cleared up, and the patient's general health, weight and strength improved. I have had reports from her at intervals of a few months. A year and five months have since elapsed and no symptoms of recurrence have appeared.

It is not my purpose to discuss at length the various operations which have been advocated for the relief of empyema of the maxillary sinus. Every one present has undoubtedly seen acute cases of nasal origin in which the removal of nasal obstruction to the ostium maxillare has been sufficient to effect a speedy recovery. To open the antrum from below in such cases would seem to be inadvisable. In cases of dental origin and cases of nasal origin which have existed for some months, where a thickened pyogenic membrane is present, better drainage and usually curettage are necessary to bring about a speedy cure. In such cases I am inclined to believe that an opening through the cuspid fossa is preferable to all others, for the following reasons: I. It is an easy, direct method of opening the antrum. II. It is most favorably situated anatomically to secure drainage. III. It permits an opening large enough to admit a finger for palpation, the removal of foreign bodies if present, and direct inspection and curettage of the lining membrane, which is often important. IV. It promises a rapid, certain cure, while small

alveolar puncture is, comparatively speaking, unsurgical and uncertain. V. It is so situated that it is not likely to be infected by particles of food, can easily be kept open by a rubber drainage tube or a wick of gauze, and can be quickly and certainly closed when a cure has been effected, by scarifying the soft parts over it and immobilizing the upper lip by a strip of adhesive plaster for two or three days.—*N. Y. Med. Jour. Dec. 1, 1900.*

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GUTTA-PERCHA OR SANDARAC. By Dr. J. H. Woolley, Read before the Odontological Society of Chicago. We have been led to believe that gutta-percha is a material answering all the requirements of a root-filling, because of its indestructibility and compatibility with the tooth structure. Within a recent period a new material, to be added to the old, has been offered, and it seems in a few cases to be securing the approval of the profession. As regards the claims made for this preparation, sandarac, they do not seem to me sufficiently well founded to gain our entire confidence. I especially question that of durability. Comparing the filling made with gutta-percha alone and that composed of the new mixture with sandarac, we need to know the nature and chemical combination of these materials, after which we can determine this question of durability and other points.

Let us first examine gutta-percha. Its chemical formula is as follows: Gutta, $C_{20}H_{32}O$ 80 per cent; fluavil, $C_{20}H_{32}$; albane, $C_2H_{32}O_2$. It is not solvent in water and can not be oxidized.

Sandarac is made up of three resins, one of which contains a bitter principle, and it is soluble in water. This has been well proved by laboratory experiments upon watch crystals. Mr. A. D. Thorburn, a chemist who has assisted me in this line of investigation, reports (Feb. 3, 1900) as follows: "The experiments showing the action of water on sandarac have resulted as follows: Ten grams of sandarac were suspended in 100 cubic centimeters of distilled water at about 20° C. for three days. 5.050 grams of the solution were filtered into a tared watchglass and evaporated; the residue, cooled, weighed .007 grams. Five grams of sandarac were suspended in 100 cubic centimeters of distilled water at about 35° C. for two days. 5.752 grams of the solution were filtered into a tared watchglass and evaporated; the residue, cooled, weighed .008 grams. Five grams of sandarac were suspended in 100 cubic centimeters of distilled

water at about 35° C. for two days. 5.022 grams were filtered into a tared watchglass and evaporated at about 60° C.; the residue, cooled, weighed .007 grams. These results would indicate that about seven hundred parts of water would dissolve out one part by weight from sandarac, under the conditions given. Marsh reports sandarac to contain three resins and a bitter principle sparingly soluble in water. There is a distinct taste to sandarac, showing the solubility of the principle in the fluids of the mouth. The resins are easily changed by chemical reagents, absorbing hydroxyl and becoming acids. The practical value of these facts can be determined only by experience, but the results are submitted with the hope of suggesting other experiments bearing directly on the subjects in which you are interested."

As I apply the results of these experiments to the question of the best root-fillings, it seems to me the old method is the safest and most permanent. When a pulp-canal is properly filled with gutta-percha it is hermetically sealed throughout the entire length. On the contrary, in the filling made with gutta-percha and sandarac varnish, the latter is made to flow into the canal until it is filled, the next procedure being to follow with gutta-percha cones which are forced to the end of the canal. The question I leave with you to discuss is, what becomes of this lining of varnish? Does it remain there permanently, or is it disintegrated by the natural moisture in the dental tubules; does it disappear, leaving an open space, in which microorganisms can find an easy habitat?—*Review, Dec. 1900.*

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EYES AND TEETH—SOME CONCOMITANT PATHOLOGICAL CHANGES. By Eugene Underhill, M.D. Read before New Jersey State Dental Society, July, 1900. It seems hardly necessary to point out the intimate relationship existing between the structures involved in this study; but since the interdependence of pathological changes are called in question, it may not be out of place to call to mind a few of the channels of intercommunication. If we wish to establish the fact of reflex-communication, we have simply to mention the trigeminous nerve, having its origin in the floor of the fourth ventricle and distributed to the skin and structures of the face, tongue and teeth. We have the three great branches of the same nerve, the ophthalmic, the superior and inferior maxillary with their anastomosing branches forming a rich network of reflex com-

munication which is scarcely excelled in any other part of the nervous organization. We have direct communication by way of the mucous membrane and the circulatory system, and possibly by means of the intercellular substance.

Let it be understood that the words eyes and teeth as used in this paper are general terms and refer to all the structures immediately concerned in modifying the condition or use of these organs. The ophthalmologist has vastly more to consider than the mere adjustment of glasses; the dentist is called upon to exercise his skill far beyond his ability to fill cavities. They will examine neighboring tissues. At times they will analyze the secretions; they will consider every circumstance that may suggest a reason for a departure from the normal, or discover a means of arresting disease.

Associated Lesions of Eyes and Mouth.—In abscesses of the cornea and in phlyctenular conjunctivitis and keratitis the pathological changes observed in the mouth are practically the same. Abscess of the cornea appears as a yellowish, slightly elevated, round or crescent-shaped opacity near the center of the cornea, and is surrounded with a light grayish zone. The whole cornea frequently becomes dull and lusterless. Pain and photophobia always present. Phlyctenular conjunctivitis is marked by the formation of one or more ulcers of a grayish red appearance upon the conjunctiva. They are attended with signs of congestion, pain, photophobia, swelling and redness of lids and a muco-purulent discharge. In phlyctenular keratitis we have one or more small vesicles forming on the margin of the conjunctivia and extending upon the cornea usually in the shape of a crescent. There is acute pain, lachrymation, and intense photophobia. This patient is generally a child, but may be an adult. The patient appears to be poorly nourished, carries the head well forward while walking or bent down while sitting. The skin is rough and dry, but unusually white, and at a little distance has a soft, pasty appearance. The face may appear rather full, but the body is emaciated. From many of these patients you may frequently get a history of epileptiform spasms.

Now look into the mouth, but you may know the condition and declare it with certainty without looking. You will find localized apthous patches, inner margins of the lip sore, teeth loose and very sensitive; a drop of cold water applied to the base of a tooth causes pain; simply touching with an instrument, or a draught of cool air

may do the same. The gums are swollen, painful and bleed easily. Dental caries will probably be found well advanced especially in the lower molars, and pressure upon these teeth causes pain which is referred to the ears. In the mind of the dental therapeutist the apthous condition referred to is generally associated with gastric disturbances, and no doubt there is a casual relationship, but it is a result and not a cause. The sometime regulation treatment in the administration of laxatives and the alternate exhibition of alkalies and hydrochloric acid may give you something to think about, and divert the mind of the patient for a time, but in the end if you have these associated conditions it will not do any good. But intelligent cooperation on the part of oculist and dentist will produce results that will make the "Eyes Examined Free" specialist and the "Dental Parlor" magnate turn green with envy.

Nictitation or clonic spasm of the orbicularis muscle, and frequent appearance of hordeoli or styes, may be and generally are due to errors of refraction; but in some cases the most skillful adjustment of lenses fails to remove the difficulty.

Let us suppose that all treatment directed to the eyes fails, as occasionally happens; here the family physician may be thought of for the institution of measures looking to the correction of digestive disturbances—and such disturbances probably exist, but they are usually of the kind that are associated with dental changes, and the dentist ought to be better equipped for dealing with such a case, and to him the patient should be sent. The ears are generally involved by extension, the gums are sore, the mucous membranes are all dry and have a dirty appearance. Now let the dentist proceed to clean house. Remove the dirt from the teeth, fill the cavities, replace any dentures that are missing, order an appropriate mouth-wash, and tell the patient to call early and often.

Glaucoma is probably one of the greatest calamities that can overtake an individual, since it threatens total loss of vision. It is an increase in the intraocular tension due to an excess of fluids in the eye. The only hope for the patient in this disease is its early recognition. The very first symptom in glaucoma is pain in the upper molars, and especially pain on pressure. This pain may or may not extend to the eye or the temporal region. When such a case comes under the observation of the dentist, and he has excluded all possible causes emanating from the teeth or surrounding parts, he will

do that patient the greatest possible service by referring him to a competent oculist, and at the same time he will gain for himself a reputation for keen insight and practical investigation.

In inflammatory glaucoma pain that is caused by pressure on the upper molars generally extends over the face to the eye and ear. There is a condition simulating glaucoma which produces a temporary dimness of vision, which is frequently caused by advanced pulp degeneration and pericementitis. Neuralgia of the eyeball, characterized by pain in the eyeball and forehead, lachrymation and photophobia, is frequently cured by the removal of a molar stump from the upper jaw.

Exopthalmos, characterized by protrusion of the eyeballs, may be due to circulatory disturbance, myopia and orbital tumor, or it may be a symptom of exophthalmic goitre, but when there is a protrusion of one eye alone, a possible dental disturbance should not be overlooked. In acute cases characterized by intense pain in the orbit, roaring in the ears and general congestion of the affected eye, some old stump of a carious tooth is frequently at the bottom of the whole trouble.

Mydriasis, characterized by an abnormal dilatation of the pupil, is frequently caused by sordes and neglected carious teeth, the accumulation of debris producing a condition affecting the eyes in a manner simulating ptomain poisoning. It is, however, worthy of note that mydriasis from this cause is usually unilateral. As mydriasis is almost always present in glaucoma, the importance of referring this patient to an oculist should not be overlooked.

Errors of refraction and abnormal ocular conditions are frequently causes of stomatitis, and should not be overlooked in obstinate cases. If vomiting supervenes, or the secretions of the mouth become acrid and excoriating, eye-strain is probably to blame.

It is well known that headaches are very frequently due to troubles affecting the eyes, and it is probably this symptom which brings the majority of patients to the office of the ophthalmologist. Formerly the oculist considered headaches as all belonging to him; he seemed to think that they were all his by a sort of divine right, until the gynecologist appeared and demanded a division. Perhaps there ought to be another partition and the dentist be allowed to have his particular headache. Whether he has ever claimed it, or even thought of the possibility of headaches being caused by dental dis-

turbances, they certainly do occur in that way. In neuralgic headache, associated with lumbago (the rheumatic diathesis), at some point of the dental system will be found a tender area which, on percussion, will be followed by more or less pain in the eyes and temples and a possible involvement of one or both ears. It may be due to caries or exostosis, or both. It is worthy of note that in almost all headaches of dental origin in which the eyes are involved there is scarcely ever a toothache or any other symptom directly associated with the dental system.

Effects of Syphilis Upon the Eyes and Teeth.—There are perhaps no pathological changes affecting the eyes and teeth that are so extensive and destructive in their process as those associated with gonorrhea and syphilis, especially syphilis; and this is not surprising, but that the associated phenomena should be so marked, and at the same time so little understood, is a subject of wonder and amazement. As between the ophthalmologist and dentist, the ophthalmologist, perhaps, has the best of it by reason of an accumulation of literature upon the subject and the necessity of frequent differential diagnoses. But it would be supposed that the dentist, coming in frequent contact with mucous surfaces, loaded with toxic elements and presenting destructive changes involving almost the entire dental system, would be a past master in the recognition of such conditions. Perhaps he is, but it is safe to say that he did not get his information from dental literature. It is doubtful if he could find a clear, brief, pointed, practical statement of the essential facts in any literature, yet the manifestations are well defined, easily understood, and present themselves in a manner clear as sunlight.

Syphilis may show itself in eyes in the form of syphilitic iritis, ocular paralysis, blepharitis, retinitis and optic neuritis. There are many other eye manifestations of the disease, but this list will serve our purpose. The diagnosis of these lesions requires considerable experience in the use of the opthalmoscope. For the purposes of this study, however, it is sufficient to point out certain symptoms that may be readily recognized in connection with dental changes. There are three stages in syphilis; the primary, secondary, and tertiary. All manifestations of this disease in and about the mouth are highly infectious.

The eye symptoms may be very marked, or they may be slight

and require close observation, and some questioning to establish their presence. You may get a history of diplopia or double vision, sudden loss of sight while reading, pressure and stinging in the eyes, and inflammation. You may observe postules on the cornea, but there is no photophobia or pain. There may be edema of the eyelids and ptosis or drooping of the upper eyelid. The margins of the eyelids often appear red and inflamed, sometimes all the structures of the eye appear congested, but there is a suggestive absence of pain. Anesthesia or dullness of sensation in the skin of the face is frequently observed. Instead of the bluish appearance often observed about the eyes in exhaustive disease, you may note a yellowness, which is nearly as well defined above the eye as beneath it; and when this symptom is present the cheeks usually appear red, due to sluggish capillary circulation. Caries frequently develops in the mastoid process and malar bones; even when the disease is well treated and all ordinary symptoms are well controlled, pressure in the vicinity of these bones will disclose a tenderness if not an actual pain. Pain behind the eyeball is suggestive of caries of the orbit.

The symptoms mentioned may be observed any time after the initial lesion, but especially during the second stage of the disease. In the beginning of the second stage the pupils are generally contracted. Late in the second stage the pupils are generally dilated and appear unusually bright. It is well known that syphilis has a great affinity for glandular structures. Even during the initial lesion a slight tenderness may be noted in the submaxillary glands; a tenderness which increases very slowly until a sore throat develops; and that sore throat is almost always a one-sided sore throat.

Now look in the mouth. The mucous membranes appear dark red and raw, sometimes copper-colored. They look very tender and as if they would bleed easily, but a puncture from a sharp probe does not bring any blood, and the patient does not complain of pain. The uvula is always involved. The gums are red and swollen, and have a tendency to stand away from the teeth. Later the gums are *white* and swollen; the whiteness being due to death of tissue. The teeth have a marked tendency to become yellow and loose, and are very sensitive to anything cold or warm. Some of the teeth may fall out, due possibly to caries of one or both maxillary bones, but more likely to pyorrhea alveolaris.

You have been looking for a cause of pyorrhea. If it is true, as one of your observers has declared, that the peridental membrane is supplied with a glandular system, is it not reasonable to suppose that syphilis, from its well known affinity for glandular structures, is a very fruitful cause of pyorrhea?

In gonorrhea some interesting associated changes may be noted, especially those occurring during an active gonorrhea ophthalmia. The eyelids are swollen and constricted, there is great pain, profuse lachrymation, photophobia and a thick yellow discharge. All the mucous membranes of the mouth are hyperemic. The follicles of the pharynx are distended, and when ruptured by pressure a thick, yellow mucous may be seen. In the ulcerated condition of the follicles they are large and irregular in size. This condition is not met with in syphilis. In gonorrhea the mucous membranes appear distended or thickened, due to inflammatory processes. In syphilis the mucous membranes appear shrunken and diminished due to destruction of tissue. In the gonorrheal condition the pains are superficial and acute. In syphilis they are deep seated.

Simple catarrhal stomatitis and follicular stomatitis may present changes in the mouth similar to those observed in gonorrhea, but in catarrhal stomatitis the characteristic eye involvement is not likely to be observed, and in follicular stomatitis the resulting ulcers are small and uniform in size.

The cause of the appearances noted in the mouth may be a manifestation of a general systemic disturbance, or it may be the result of a mild secondary infection.

There are many other pathological changes of common interest to the ophthalmologist and dentist, but perhaps enough has been said to show how these great specialties in the science of medicine may be mutually interesting and helpful.—*Items, November, 1900.*

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DENTURES FOR EDENTULOUS PATIENTS WITH THE GOUTY DIATHESIS. By W. B. Pearsall, F.R.C.S., Dublin, Ireland. Gouty conditions of the edentulous mouth have not received much attention from dentists. I have been told that few cases of gouty diathesis present themselves in the United States, which may possibly account for the paucity of information to be gathered on this point of practice in the standard books. Among the well-to-do patients in Great Britain and Ireland there are many

who suffer from gout or rheumatic gout. There are certain manifestations of the disease that come under direct observation of the dentist, which do not appear to have been placed on record. Over and over again I have been consulted by edentulous patients, suffering from a phase of gouty discomfort in the mouth that to many is almost unbearable. The condition is one of tenderness of the periosteum, extending over the maxilla or mandible, without any redness or swelling, such as we usually notice in gouty or rheumatic affections of the joints. The patient tells you that he has been wearing dentures, with or without springs, for several years without discomfort; that recently he has been thoroughly miserable, the pain being ascribed to either jaw, as the case may be; that it has been painful to speak or eat for some hours or days. And observant patients will tell you that the pain is "under the gum"; that is, between the bony structure of the jaw and the gum. The pain is commonly described as "burning," and is paroxysmal in character. Sometimes it is described as "gnawing," and almost unbearable while the dentures are in the mouth. In many cases examination of the mouth will show nothing but an apparently healthy mucous membrane, free from any abrasion or bruises from the use of dentures.

If the dentures are replaced in the mouth and examined *in situ* they will often enough be found to fit the surfaces of the alveoli quite well, but the patient will wince if moderate pressure is placed on the denture when resting on the affected jaw. In many instances patients are impelled by the discomfort they experience to remove their dentures for hours, even in the daytime, although the removal does not remove the pain. Patients, indeed, often remark with much asperity, "that when they had their own teeth they never suffered like this." The pain endures for hours, and comes and goes in paroxysms, never ceasing during the attack, which may last from one to three or four days before relief is sought at the hand of the dentist. The patient usually ascribes the discomfort to something having gone wrong with the artificial teeth.

Bathing the mouth with warm water sometimes gives temporary relief, and patients do this not infrequently without asking advice, as cold water is too painful to use, although the mouth feels hot under the gum.

In many cases patients show the characteristic of an impending attack of gout. The face is pale and puffy, the eyelids tender and

sometimes red, the conjunctiva of one or both eyes showing the bloodshot condition we often see in the gouty patient. There is irritability of temper and manner, so often associated with a gouty diathesis. The digestive apparatus is commonly out of order, and tenesmus is a frequent condition. In fact, the main characteristics of these irritable patients are those with an impending attack of gout. The tongue is white and "livery-looking;" not infrequently the skin will give off the unmistakable odor commonly observed in gouty patients. When this is observed by the dentist his duty is to send his patient to the medical attendant for systemic treatment. I have often been amused, when the skin odor is present, to find patients declare they *never* had gout, and that a dentist can not know anything about it; so that I have been compelled to offer them the alternative of permitting me to stamp on a great toe or to send them with a letter to their physician.

If, happily for the patient, the attack of gout settles in the hand or foot or in the digestive tract the pain in the mouth vanishes like magic, and the dentures can be used for speech and mastication as before without any alteration. No discomfort will be felt in the mouth for months, till another impending attack of gout manifests itself by pain in the poriosteum of the jaws.

In some of the cases that have thus consulted me metal plates have been used for both dentures, usually of gold. In others vulcanite has been used, but it has long been borne in upon me that a gouty patient with an irritable periosteum should not wear vulcanite dentures. Patients of a gouty diathesis with an irritable periosteum too often find it difficult to wear vulcanite plates, owing to the sense of heat and burning the non-conductibility of the vulcanite sets up in the mouth.

I have had a prejudice myself for many years in favor of wearing some form of metal plate next the gum, for the following reasons: Absorption of the alveolus under the metal plate is much slower than under vulcanite, and the metal plate is stronger and less likely to be injured. The metal plate responds to the heating and cooling of the mouth when influenced by food or air, and the mucous membrane maintains a better condition of health as compared with a similar case in which vulcanite is used. It is my opinion that gouty patients, and especially those with an irritable periosteum, should always wear metal plates.

During the past six years I have had to treat seven edentulous patients who were of a strongly marked gouty diathesis. All these patients had been wearing dentures for years "with the greatest satisfaction" till the irritable condition I have described set in. One patient, a friend, lost his teeth comparatively early in life—about the forty-fifth year—from pyorrhea alveolaris. He was carefully treated when the teeth had become seriously loose, but the treatment was not effective because the sockets had vanished before he bethought himself of getting anything done, so has had to wear dentures for the past fifteen years. He is a gouty subject, and has suffered from time to time as I have described. I have made for him dentures of vulcanite, using tin foil or tin models to vulcanize upon, so as to get as good results from the rubber as possible in the way of toughness and high finish on the surface. I have made also dentures with gold plates, and also of continuous gum, using for the latter hard platinum plate perforated with holes. With all these cases there were at times a certain amount of discomfort before a gouty attack was imminent, but it was never necessary to adjust the margins of the dentures.

In 1895 Dr. L. P. Haskell showed me some aluminum plates he was making with vulcanite attachments for the teeth for edentulous patients, and assured me that his patients liked the aluminum metal far better than gold. This metal has many advantages as it is prepared nowadays, and I was induced to try it for my friend. The new dentures were made with pure hard-rolled sheet aluminum of a suitable thickness. Sittings were given to test the plates, to take the bite, to try the occlusion of the porcelain teeth. With the exception of a slight taste of zinc for a couple of hours, he never was so comfortable. He had tried the use of his ordinary food, hot and cold water, acid fruit, without any discomfort whatever. He declared also that he could *taste* all kinds of food *better* than with any other dentures he had ever used before. He has had no discomfort from his periosteum since he has worn aluminum plates, and he considers that aluminum has advantages for gouty patients no other material can give.

Another case, that of a lady who had been wearing gold dentures with vulcanite attachments to the porcelain teeth and gold springs for years, came to me complaining of the "heat in her mouth." She had the deformed fingers of the chronic gouty patient, "chalk

stones," in fact. There was nothing of moment with regard to the fit of the dentures, nor was there any bruise on the gums from excess of pressure or misfit of the dentures owing to the wasting of the alveolar ridge. I suggested the use of aluminum plates, but had some misgivings with regard to a possible galvanic action set up by the use of gold swivels and springs connecting the dentures. The dentures were made in the usual way, with thick rolled pure hard aluminum plates, and gold swivels and springs were used. This lady has been wearing the aluminum base-plate dentures for four years without any return of the periosteal pain in the mouth. There is no evidence of galvanic action from the use of the springs, as they are carefully insulated by the vulcanite from any contact with the aluminum.

The other cases resemble those described. In every case the symptoms of gouty periosteal discomfort vanished with the use of aluminum base-plates. All the patients agree that the function of taste is more acute with an aluminum plate than with other metallic or vulcanite settings for artificial teeth. I use pure *hard* aluminum rolled into sheets, and the plates are swaged with metal dies in the usual way. When trying them on the mandible I am careful with a suitable pair of pliers to turn up the edges over the mylo-hyoid ridge, and at the attachments of the buccinators and the frenum of the tongue and lower lip. By doing this to the mouth of the patient, and by deliberately pressing the plate on the mucous membrane and gum firmly with the fingers or thumbs, all pain from edges will be avoided. Vulcanite adheres to aluminum plate just as well as to gold, and the resulting denture is strong and light, so for suction excellent results can be gained.—*Cosmos, Nov. 1900.*

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WOODEN PHLEGMONS. Reclus and others have described a peculiar form of chronic inflammation of the skin and subcutaneous tissue characterized by a slow clinical course and by a wooden consistency, *phlegmon ligneux, Holzphlegmon.* Most frequently involving the neck and developing even for months without fever or pain, they so simulate malignant neoplasm that the termination in recovery may be the first means of reaching a correct diagnosis. In one case described by Reclus death resulted from a suddenly developing edema of the glottis. Various organisms, but especially streptococci and staphylococci, have been found in the exudate.

Krause has described an instance involving the hypogastrium. Recently Chiari of Prague has added still another instance, which is remarkable because of the extent of the disease, the long duration, the absence of suppuration, and the final general infection with streptococci. The patient was a woman of 50 years. The inflammation probably originated in a dental periostitis, caused by carious teeth. From this point there gradually developed a chronic, painless, afebrile process marked by much production of new connective tissue. In the course of some five or six months the hard, dense swelling had extended to the neck, the tissues of the chest wall, including the mammæ, and of the mediastinum; the cervical and axillary lymph-glands were also swollen, and the left upper extremity showed some involvement. Death resulted from a bilateral acute pleuritis, caused by streptococci, which were found in various parts of the subcutaneous and mediastinal fibrous tissue, whence the pleuræ probably became infected by way of the lymphatics. Streptococci were also present in the blood. During life two attempts at culture experiments proved negative, indicating, it is thought, a change in the biologic characteristics of the coccus. No cultures were made at the autopsy. The disease is an interesting one, which merits further study before the etiologic relations can be fully understood.—*Jour. Am. Med. Assn.*

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TEETH. By W. S. Williams, D.D.S., Uniontown, Ky. Read before Kentucky State Dental Association, May, 1900.

Teeth as we find them are awful things,
Chuck full of nerves, aches and pains,
Head swollen up, eyes a fright,
Got no hope, jaws stick tight.
Our telephones ring, our night-bells chime,
With a pounding on our doors at the selfsame time.
"My God! Doctor, wake up, quick!
I've nursed this toothache 'till I'm almost sick.
Please hurry, Doctor; I've no doubt
This will be a terrible tooth to pull out.
I had one pulled by Dr. Jones;
He broke off the tooth and part of the bones.
I can stand anything, but this makes me sick!
Oh, Doctor, hurry! please be quick!"

"Yes, I'll hurry!" and you jump out of bed;
Your foot strikes a coal-hod, the lamp hits your head;
You are sorry he suffers, will soon make it right,
But say to yourself, "I wish you'd died last night."
You quarrel at your luck and hunt for a match,
An unusual cuss word from your store to snatch.
Speaking of cuss words, if they help out a bit.
A dentist should use them whenever he sees fit.
You light up your lamp, get in your clothes,
The fire's all out, you are almost froze.
Man comes in with hand on his jaw,
"I am sorry to disturb you, Doc, but, oh, my law!"
Takes his seat in the chair, throws his head back,
And while you for your instruments do rummage and rack,
He rattles his head as if he were wild,
Gives you his history from the time he was a child;
He talks of his folks—his uncles and aunts—
Of all who wore petticoats, all who wore pants.
They all had their troubles—some not a few—
Horse kicks, broken jaws, toothaches, too.
He brags of his nerve, his stock, hogs and sheep,
Takes up your time, when you should be asleep.
"Be careful, Doc—let's wait a while—
It's been aching a week—it's as sore as a 'bile.'
Wait just a minute, I am scared to a fright,
Maybe you'd better not pull it to-night.
Now it's getting better, maybe it'll quit.
Say, Doctor, what do you think about it?"
He spreads wide his mouth and feels of his tooth,
And swears that he thinks it a little bit loose.
The time passes by; you begin fretting;
You are freezing to death and that old devil is sweating.
You can't stand this foolishness, and you tell him so.
"Now, you have that tooth pulled or get up and go."
He opens his head and grabs the chair—
Out comes the tooth as slick as a hair.
He yells like a demon, throws up his feet,
And attracts a policeman down on the street;

Jumps out of the chair, swoons and groans,
Says you have killed him and broken his bones;
He keeps complaining as he fixes to go,
He rivets his eyes on the middle of the floor,
Growls and profanes, and it's always so,
For he has forgotten his pocket-book and going to beat his bill, you know.—*Indiana Journal, Dec. 1900.*

* * *

GUM REPRODUCTION IN INTERPROXIMAL SPACES. By George T. Carpenter, D.D.S., Chicago. Read before Kentucky State Dental Association, May, 1900. The subject of gum reproduction is a study which involves much labor and time. Very little has been written on the subject that would encourage the practitioner to experiment in this direction. Every dentist has seen a production of gum in localities where it was not needed, and still this growth is the result of a cause, which I claim to come from stimulation and protection. The sharp or rough margin of cavities, plates or deposits, may act as a stimulus, and granulations are thrown out which are protected by overhanging walls of tooth, plate or soft parts, and these granulations are allowed to organize into tissue. My method of reproduction is along this line, but in this paper I will cover only the development in interproximal spaces. The loss of tissue between the teeth comes from two principal causes, namely, a lack of the natural contour in fillings, and the injudicious use of the toothpick. The injury will vary in different cases from a slight receding of gum to its entire destruction, which in some cases is followed by necrosis and loss of teeth.

Treatment—First get the etiology of the case in hand and make a careful diagnosis, and remember that reproduction should not be undertaken in the presence of pus. The patient as well as the operator must have a high estimation of the value of gum-tissue, and there must be a perfect cooperation in the work. In mild cases when the points of the festoon are destroyed a renewal of the contour of the masticating and proximal surfaces with directions as to the use of the toothpick will be all that is necessary. The word "toothpick" misimplies its use, which should not be to pick, but to push the food from between the teeth. This is easily done by removing the point of the toothpick to a rounded end and flatten the sides so that it will pass easily between the teeth without injury to

the gums, and with this push the particles of food from between the teeth to the inside, where it can be easily caught up by the tongue and ejected from the mouth. The wooden toothpick is as good as picks of other materials when shaped in this way. In cases where the interproximal tissue is absent and the gum sags so that the accumulation of foreign material causes more or less irritation, it is necessary to protect the parts. This can be done with shields or hoods made of rubber or metal which will fit closely to the sides of the teeth and reach from the masticating surface of the crown to the gum. In making the hood or shield an impression is taken with modeling compound of each side of the tooth separately, so as to insure a perfect fit at the gum margin, and by using a slight amount of cosmolin on it any number of duplicate models can be made from the same impression. The model can be waxed up for rubber or cast metal, or dies made for swaging. The shields or hoods are applied, one on each side of the parts to be protected, and are held in position by platina strips or wire, silk ligatures, or by metallic loop and pin, whichever is best adapted to the required case. The soft parts, where reproduction is required, should be stimulated with a solution of nitrate of silver one dram to water one ounce, or nitrate of silver two drams to water one ounce, according to the requirements of the tissues, some obstinate cases requiring crystals of silver nitrate fused on an aluminum strip and applied to the parts. This should be done before applying the protecting shields. In cases where the tissue has been entirely destroyed and the process can be felt by examination, and exposed surfaces are tender to thermal changes, a gelatin dressing with silver salts or protargol has been very useful in my hands. Remove all debris, cleanse the parts, insert a wedge-shaped piece of gelatin between the teeth and place the hoods in position. The gelatin will keep the medicament continually in contact and lessen the space for the accumulation of foreign substances. Examinations should be made every day or two and the gelatin renewed if necessary.

In extreme cases, where the process between the teeth will not respond to the probe by causing pain or flow of blood, it is necessary to use the bur and remove the bony tissue until you get a response and are convinced that the parts worked upon are alive, using the strictest antiseptic precautions in all cases, and treat with gelatin dressing as in other cases.

In teeth where dead pulps are present all putresence should be removed, and when free from tenderness and odor canals should be filled. The shields or hoods should be worn some time after tissue is reproduced, to protect the newly-formed gum, and care should be used not to injure this tissue by returning to former causes, which result was their loss or destruction. Interproximal tissues thus treated will stand ordinary uses of the mouth and will grow better and firmer with use and age.—*Indiana Journal, Dec. 1900.*

* * *

FUNCTIONS OF THE TONSILS. By Dr. S. V. Mangouby. In order to determine whether the inhalation of pyogenic germs is more injurious to animals without tonsil, the author removed these glands in a number of dogs, and placed these animals in boxes containing decomposing animal substances. A number of dogs with tonsils were also placed in these boxes for check purposes. Another series of experiments consisted in removing the tonsils of a set of animals, and then injecting diphtheria toxines into the blood of the dogs thus operated on. This was done under the supposition that the tonsils manufactured antitoxins against diphtheria and perhaps other infections, and it would be interesting to find out whether dogs whose tonsils had been removed were less resistant to diphtheria than those that retained the glands. In a third series of dogs the author removed the tonsils, sprayed the mouth and throat with the cultures of *Staphylococcus pyogenes aureus*, and injected diphtheria toxin, so as to imitate a case of mixed infection. He also examined the blood of the animals after removal of the tonsils, and found that after amydalotomy the number of white blood cells was considerably diminished, the hypoleucocytosis lasting for a variable period, in some instances as long as sixty-eight days after the operation. As a rule the number of red cells was diminished. After injection of diphtheria toxin, and to a lesser degree after spraying with staphylococcus culture in dogs deprived of tonsils, the blood showed hyperleucocytosis, hypoerythrocytosis, and hypohemoglobinemia. The clinical picture observed in dogs deprived of tonsils and obliged to inhale putrid air consisted of diarrhea and sometimes vomiting, while the check-dogs never showed these symptoms. The injection of toxin was borne less well by dogs the subjects of amydalotomy than by those that retained the tonsils. The former had disturbances of the gastro-intestinal tract. In some, there was

diarrhea; in all, vomiting. The author concludes that the tonsils have a definite function. (a) They certainly bear an important relation toward the blood. (b) Their integrity is an important factor in the struggle of the organism against the invasion of germs through the mouth.—*Vratch; N. Y. Med. Jour.*

* * *

PULP-DIGESTION. By A. W. Harlan, A.M., M.D., D.D.S., Chicago. Read before International Dental Congress at Paris, Aug. 8, 1900. In presenting to your notice the subject of pulp-digestion it is my aim to provide a method for removing from the roots of teeth dead pulp-tissue which, through lack of skill or lack of operative technique for its thorough removal, is ordinarily allowed to remain. Many methods of obviating the necessity for pulp-removal have been presented to learned societies, all based on the hypothesis of pulp-mummification. In looking over the subject of mummification I do not find in the department of surgery any analogy for such procedure as a permanent operation. I conclude that the destruction of pulps by any method means their removal from the roots before it is a safe surgical procedure to fill them. If this proposition be true, I desire to call your attention to a process for the liquefaction of pulp-tissue in small tortuous roots and those not easily accessible.

In times past the digestion of animal tissue has been accelerated by the use of pepsin or some of its preparations, and of starchy matters by taka-diastase. In the year 1881 Van Antwerp of Kentucky discovered that the fresh leaves of pawpaw, or *Carica papaya*, would digest fresh meat, beefsteak, and other animal flesh.

The pulp, as is well known, consists of blood-vessels and other tissues, and is dissimilar to any other formation in the body. It is capable of coagulation and will undergo putrefaction after death, the same as others of the soft tissues. This being granted, we must at once concede that there are teeth having very attenuated and twisted roots where it is almost a physical impossibility to remove all the dead pulp-tissue before the putrefactive process begins. To relieve us of this operative procedure, I have long been interested in the digestion of such tissue, and will present now the experiments to show the possibility of liquefying such tissues in teeth.

Papain (papayatin), which is obtained from the *Carica papaya*, is now procurable from such manufacturers as Merck, Schuchardt, and others. It is a whitish, somewhat hygroscopic powder, having the

taste of pepsin. It is soluble in water and glycerol. It is active in an acid, neutral, or faintly alkalin solution. It has been used notably in general medicine, diphtheria, in fissures and ulcers, and generally in the domain of surgery as a digester. In stomachic disturbances the best results have been obtained. It is absolutely non-irritating; it is a non-coagulator and without action on living tissue. The fresh leaves of the pawpaw have long been noted in our country for their softening effect on tough meat, the joints of fowls, etc. My first experiences with pawpaw began more than three years ago. The first requisite in its successful use is to have the pulp dead. It does not act well when made into a fresh paste with water unless it is slightly acidulated with hydrochloric acid, one to three hundred. Its action is slower when a dead pulp has been treated with acids, creasote, carbolic acid, or zinc chlorid. When oils have been rubbed on the surface or arsenical paste has been in contact with a pulp its solution or digestion is not retarded. I find that pulp-tissue is digested more rapidly if the surface has been lightly painted with one to two hundred sodium fluosilicate, or a solution of borate of soda, one to two hundred; carbonate of soda or magnesia may be used, but not in excess.

If one gram of papain is made into a thick paste with glycerol and a drop of hydrochloric acid solution, one to three hundred, is added it always acts well. My experiments out of the mouth were conducted as follows: Freshly extracted teeth were taken and the roots enveloped in cotton soaked in distilled peppermint water; the pulp-chamber was opened and the first pulp had the paste applied to it without first touching it with any drug. The remainder were touched with alcohol, zinc chlorid, arsenical paste, oil of cassia, creosote, carbolic acid, and sulfuric acid. As much of the paste was packed into the pulp-chamber as it would hold, and the cavity was sealed and the roots kept moist in a chamber where the temperature was even at 98½° F. These cases were examined at the expiration of twenty-four hours without sensible effect. They were again examined in forty-eight, seventy-two, and ninety-six hours. Complete solution would not take place under ninety-six hours, and if there was considerable pulp-tissue in the root it was usually five to six days before it occurred.

When the roots of teeth were enveloped in liquid vaselin or in distilled water, to which half of one per cent of peppermint or cassia

had been added, the results were almost identical. During the past winter and spring months I used about one hundred and fifty freshly extracted teeth, but found it impossible to digest fragments of the pulp in small or tortuous roots under five to six days. In the mouth, clinically, the papain will act more rapidly, four days being usually sufficient to digest small fragments of pulp-tissue. If a large mass of pulp-tissue remains in a tooth the papain paste must be reapplied at the end of the second day, and occasionally for a third time. I have found from repeated experiments that it is best to remove all tissue in sight, and then pack the roots and pulp-chamber full of the paste and seal with oxysulphate or oxyphosphate of zinc, and let it remain without interference five to eight days. In this way the patient suffers no uneasiness and there is no risk of pericemental irritation. Putrefaction does not take place in the presence of a solution made in glycerol. It is needless to remark that this operation must be done under antiseptic precautions from beginning to finish.—*Cosmos, Dec. 1900.*

* * *

PROPOSED UNIVERSAL BLANK FOR APPLICATION AND EXAMINATION. A great deal has recently been said about an universal blank for insurance applications and medical examination. The following, by Grove Cole in "Insurance Post," was recently presented to the Society of Congenial Brethren for approval: It was a stormy afternoon, and there was very little business on the street, when a fat, genial-natured looking man, with a breath that smelled a good deal like a political primary, strolled into our thought-gymnasium and called for a sheet of writing-paper. The paper being handed him, he wrote the following, after which he thrust the pen he was using into the mucilage bottle, jammed one of his feet into the wastepaper basket, leaned back in his chair and went to sleep. Here is what he wrote:

Most Noble, most Anshent and most Awlgeewhillikin Sosiety of Conjeenil Brethring for the inshoorins of human lives & the protekshun of widders & orfins. Jine now before it is everlastinly 2 late. Git one of ower Pollersis & sleep with it under your Piller & be happy. Ower motter, Beneverlins, peace, kumfort and moochal good will.

The follerin is the form of applecashun wich you must fill out in Order to jine. Rite your ansers in a plane, bold hand.

Wats your name?

Where, when and why wuz you born as near as you kin kalkerlate.

Wats your ocyoopashun or air you a member of Coxey's Army?

Air you single or Bawld heded?

Wats your mesher or do you Drink rite out of the bottul?

Wats your surkilashun?

Wat part of the town & wat resorts do you surkilate in?

Wat race do you belong 2 or don't you keep a trotter?

Ever been vaxinated?

If so, who dealt the Kards?

Ever delt or Meddled with intoxercatin Lickers?

Air you henpecked or bein grownd down with eny other kind of monoperly kaklated 2 shorten your life?

Wat is your habits as regards Sickeretts, 1-ide speckercles, mustash growers, musk, hair ile & sech?

How mutch corn beef & kabbage, mins pie, welch Rabit, limburger cheese, baled hay, bordin house Hash, gravvle & Skrap irun can you devowr jest before goin 2 bed?

Is your teeth home grown or artyfishel?

Tung ever feel like a dore mat?

Eny Buzzin in your Hed or sinkin spels?

Ever hev gloomy 4bodins ackumpanied by spots before the ize sech as 2-spots, 5-spots or 9-spots?

If so, how much was ther on the Bord?

Do you keep a Mewl or any other explosiv on your premersis?

Ever git ketched in a Foldin Bed, fall down thro a stove pipe Hoal, tumble hed fust into a barril of Prepared mustard, set down on an enraijed hornet, slide out of your pocket at prair-meetin, slip up on a benaner peel wile tryin 2 make a impreshun on your Lady Luv acrost the street, or meet with eny other axidents kalkylated to shatter your constatushun?

Air you adikted 2 chawin tobacker or your walkin Stick, or eny other villernus pracktises?

Wats your family record, if eny?

Is your nose blew, purple, crushd strawbery, or plane Old Gold? (for identyficashun).

Air you aware we don't pay klames on Umbrels & Hats found on the Brink of niagry fawls?

VALLERBLE OPSHUNS.

The follerin splendid opshuns is offured 2 you on one of our Pollersis wich you can avale yourself of at the end of 100 years from Date as follers, 2 wit:

1. Draw awl youv got kumin 2 you at wuns.

2. Draw a part of wat youv got kumin 2 you at wuns & let the Balluns ackoomlate 2 be drawd later.

3. Draw it Awl later.

4. Draw a part at wuns, draw a part later & draw the Balluns at deth.

5. Leave all youv got kumin 2 you & draw a bull Dorg & 1-hoss waggin.

6. Leave the Bull dorg & waggin & draw your breath for life, after wich draw on us.

* * *

ARSENICAL STOMATITIS. By Dr. J. Allen Johnson, Smyrna, Del. On Sept. 16 Mr. J. presented himself for treatment. Found large occluso-mesial cavity in right inferior first molar extending beneath the gum margin. Removing the carious matter and softened dentin, the surface of pulp was found to be exposed and badly ulcerated. Devitalization was determined upon, preparatory to which the surface of the exposure was first treated with phenol, then wiped with cotton saturated with formalin. A small piece of devitalizing fiber having been placed on the exposed pulp, the cavity was sealed with cement.

As it was with the greatest difficulty that the cavity could be kept dry (or comparatively so), and fearing there would be some leakage of the arsenic, the patient was instructed to report two days later, but as too often occurs, an opportunity was not given to examine the case until Sept. 29 (just thirteen days later), and the patient complained of tenderness of the gums surrounding the superior incisor teeth. The gums had assumed a rather inflamed appearance. An appointment was made for the following afternoon, Sept. 30. Patient passed a restless night, complained of severe pain and tenderness of the gums, difficulty of speech and soreness of the throat.

Examination showed a general inflammation of the gums and mucous surfaces of the mouth combined with inflamed tonsils. Several large ulcers were found on the inside of the lips and cheeks,

also on the under surface of the tongue near the frenum. The tongue was somewhat swollen and covered with a brownish yellow mucus; saliva thick and stringy with a tendency to drooling; swallowing and expectoration difficult; odor of pus on the breath. What appeared to be a thick yellow mucus covered the gingivae, but an attempt to wipe it away with cotton disclosed the fact that it was sloughing gum tissue, and an examination of the ulcers showed them to be circumscribed areas of mucous surface, presenting all the pathological characteristics at the gum margins. While there seemed but little disturbance of the tissues adjacent to the tooth treated and containing the arsenical application, from the conditions present the case was diagnosed as arsenical stomatitis.

Treatment.—The pulp was immediately removed and tooth filled with cement. With a sharp chisel as much as possible of the necrosed matter was removed, the gums and ulcers painted with iodin and aconite in equal parts. Instructions were given the patient to avoid the use of stimulants; and to confine the diet to fresh fish, eggs, milk and oranges or other fruit. To take one ounce of rochelle salts upon retiring, and to use as a mouth-wash, ℞. Potas. chlor. f. oz. I. Fld. ext. hamamelis f. oz. IV. M. et Sig.—One teaspoonful in one-half glass of water every hour. Also to use a 3 per cent solution peroxid of hydrogen every half hour in the same manner.

Oct. 1.—Patient had passed another sleepless night, suffering considerable pain. Unable to partake of any solid food. Examination showed the sloughing to be more extensive than on the previous day; the general inflammation more violent. The sloughing tissue was again removed and treated as before with iodin and aconite. The patient was instructed to continue the use of the peroxid of hydrogen, and to use as a mouth-wash every hour zinc sulphate, two and one-half grains to ounce of water. To take of potassium iodid five grains three times per day. The ulcers and necrosed surfaces were then treated with dialized iron. Oct. 2.—Case presented the general appearance of the previous day, condition of the patient having improved. Swelling of the tonsils and submaxillary glands had disappeared. Examination showed the sloughing process had ceased, indicating that the arsenic had spent itself or been neutralized. The treatment prescribed the previous day was ordered continued, with close adherence to instructions relative to the diet. The

glycerite of tannin was substituted for the zinc wash with agreeable results. The condition of patient gradually improved, and at the expiration of one week he was entirely well.

There are certain features about this case that I do not understand, and hope some one will make clear. Why so much destruction of tissue at points remote from and so little destruction near the tooth in which the application had been made? While convinced that the arsenic escaped in this case from the cavity at the cervical margin, the question has often arisen as to whether it is not possible for the oxyphosphate of zinc cement, when placed over an arsenical application, in the form of a thin mix, to take up a certain quantity of arsenic, which renders the cement when disintegrated in the saliva an irritating factor?—*Items, Dec. 1900.*

* * *

MILK A UNIVERSAL ANTIDOTE. A writer in a recent number of the *Pharmaceutical Era* emphasizes the use of milk as a universal antidote applicable to most cases of poisoning. By its fatty matter and its casein it protects the mucous membrane against the corrosive action of acids, alkalies, and other caustic or irritant substances. The chemical role of casein is here very remarkable and valuable. It is able to fill the double part of acid and of base, in the presence of compounds with which it is brought in contact. It not only coagulates under the action of acids by combining with them, but it also yields a precipitate with most mineral bases, forming insoluble caseates. If precipitation does not immediately take place with a product having a given reaction—acid or basic—this precipitate will appear through the intervention of another substance of contrary reaction. Dr. Crowzel proposes to add to the milk 5 per cent of borate of soda. This salt is not toxic, and is employed because it precipitates as insoluble borates all the mineral bases, except harmless or slightly poisonous alkalin bases. The poison acids decompose it, seizing on the soda and setting free boric acid, which is less poisonous and less soluble. The mixture of borate of soda and milk is an antidote at once neutralizing and precipitant. It can be used especially with mineral poisons, although we must except cyanids, ferrocyanids, ferricyanids, chlorates, nitrates, arsenites, arseniates and oxalates. Of these the first three are are precipitable by a mixture of ferrous and ferric sulphate, while chlorates and alkalin nitrates can not be precipitated by any

offensive reagent. Arsenites and alkalin arseniates can be eliminated by magnesia. In any case no risk is run, and good may be done by giving milk with borate of soda to one who is thought to have been poisoned. It is the first thing to be done after emptying the stomach. If arsenic is suspected magnesia should be given. If there are vegetable poisons, the best antidote is a 1 per cent solution of permanganate of potash.

* * *

CHEWING GUM AND DIGESTION. The constant titillation of the salivary organs kept up by chewing this stuff not only causes a steady drain of saliva, which is most wasteful, but what is more serious still, in consequence of the frequently repeated stimulation to which these organs are thus exposed, they fail to respond to the normal excitation which ought to rouse them to action when food is taken. A constant dribble of salivary secretion is substituted for the healthy flow which should occur only at meal-times. The glands fail to respond to any stimulant less potent than the peppermint, aniseed, or other constituents found in chewing-gum; and the more insipid foods, such as bread and other starchy compounds, pass into the stomach unchanged. This is disturbing to digestion at its very commencement, and it is extremely probable that the indigestion of starchy substances, which is so commonly met with at the present day, is largely due to the waste of saliva caused by smoking, and by the constant chewing of various substances which is going on all around. The chewing of gum is thus not only a nasty habit, but is provocative of ill health. Unfortunately, when "chewing gum" is sold in the form of a sweetmeat it may cause still more serious consequences, being apt to be swallowed by children, who, like their first parents, when they see that it is apparently good for food and pleasant to the eyes, are undeterred by the superscription "not to be eaten."—*Public Health Journal.*

CHILBLAIN REMEDIES. (A. J. H.)—4829.—For unbroken chilblains one of the following applications may be used: (*a*) Sulphurous acid, 4; glycerin, 1; tannin, 1; camphor water, 2. (*b*) Tincture of opium, 1; liniment of soap, 3; oil of cajuput, 1. For broken chilblains an ointment composed of: Ichthyol, 1; tannin, 1; zinc ointment, 10, gives excellent results. Carbolic acid is frequently employed as an ingredient in chilblain remedies, but it should not be used freely for applications to the extremities where chilblains usually occur. The internal administration of calcium chlorid is beneficial to those predisposed to suffer from chilblains.—*Pharmaceutical Jour.*

Letters.

NEW YORK LETTER.

To the Editor of the Digest,

NEW YORK, Jan. 12, 1901.

MR. EDITOR:—An occurrence of more than ordinary interest is engaging the attention of both dental and medical practitioners. The contest of a will is before the courts, and Dr. C. G. Pease figures as a prominent witness. He is a practicing dentist and holds a medical degree, but has adopted the administration of Christian Science, and receives fees for his services, according to newspaper reports. He has given death certificates in connection with his practice, but claims a legal right to do so because of his degree in medicine and membership in a medical society. The board of health claims that he is violating the law, but no anxiety is shown by defendant. We are not endeavoring to shield him, nor advocating his views of Christian Science, but we really do not see how his position can be proven illegal. From a moral standpoint it does not seem right for a man to use his medical degree to protect him in practicing irregularly, but the courts will have to decide the matter from the legal standpoint. There is certainly a chance for a fine distinction, and the decision will be far-reaching in its effects.

A noted lawyer before the Odontological Society some time ago asserted that the common law could not restrain anyone from giving remedial aid at any time or place to relieve human suffering. This may be true, but how far can illegal acts be legalized, and when may one receive a moneyed compensation?

Dr. E. A. Bogue has returned from Paris, and announces that hereafter his whole time will be given to his domestic practice. Just before leaving he was given a farewell dinner by the American Dental Club.

Dr. Daboll, although an original member of that club, still remains in active practice in Paris, and according to all reports no American dentist has been more notably favored. Well deserving men get their just rewards.

Rumor says that Dr. Younger will not remain in Paris for practice, and it is hinted that the French law debars him. Where will he go next?

At a recent meeting the question of bridges with but one end fastened was discussed, and as usual opinion was divided on the point of cutting off or saving sound teeth. We have a case of eighteen years' standing in our own mouth, placed by Dr. C. M. Richmond. After wearing all kinds of plates to supply a lost superior incisor we had a sound lateral cut off and placed a Richmond crown with central dummy, extending a half-round wire collar over the palatal neck of adjoining cuspid, and this has been worn with great comfort and satisfaction during eighteen years, and has not needed repair. Consequently, we are in favor of sacrificing a sound tooth where indicated.

Dr. Allen of Newburg advocated the use of gutta-percha under saddles where it would not show, as he found that after eleven years there was no abnormal condition brought about by its use. Dr. Gillette of Newport advocated short bridges by fixed abutments at one end, and a socket made by a gold filling for a pin to set in.

The investigations of saliva by Dr. Michaels of Paris have attracted much attention, and it is thought they will prove more clearly the value of Miller's, Black's and Williams' investigations.

This meeting of the New York Institute of Stomatology was held at the office of Dr. Dawbarn, one of New York's expert surgeons. Beginning as a dentist, he worked into the field of general surgery, and he now takes more than ordinary interest in bringing to dentists cases about the mouth that will enlist their intelligent attention. He has originated the operation of removing the carotid artery on both sides of the face, claiming thereby to cut off the supply and thus stop the progress of disease of a cancerous nature.

Several of the local societies met together recently, and among other attractions was an illustrated lecture by Dr. M. H. Cryer of Philadelphia on the anatomy of the bones of the face. His ability always insures attentive interest. At his request his contribution and discussion on same were entirely informal, and this brought out many young men who showed a decided familiarity with the subject.

The Odontological Society holds its thirty-fourth anniversary meeting this month, sessions occurring in the afternoon and evening, to be followed by a banquet. Three of the five essayists are from Chicago and one from Denver, which speaks well for the west. These large gatherings once a year generate a social spirit which does much to smooth down any little differences which may occur.

More and more of our confreres are moving into the tall buildings. This may do for the young men, but we old fellows prefer to stick closer to mother earth.

While writing, the sudden and unexpected news comes of the death of a friend cherished for fifty years—Dr. C. S. Hurlbut of Springfield, Mass. He started practice one year ahead of us, and we counseled with him regarding the wisdom of our taking up the profession. His life has been full of usefulness in a variety of ways. Over thirty young men were trained in his office, and eight of them located in Springfield. The Doctor, however, did not believe that established practitioners should not help students for fear they would settle near them and build up a practice, and this broad-minded view was characteristic of him. Not only was he esteemed in the profession, but he held the respect of his fellow townsmen and was prominent in local affairs. He leaves a son, already a dentist, who will no doubt successfully follow in his father's footsteps. Cordially, NEW YORK.

SECTIONAL VERSUS SEAMLESS CROWNS.

To the Editor of the Digest, CHICAGO, Jan. 16, 1901.

DEAR DOCTOR:—In the last issue of your journal appeared a letter entitled "Merits of a Seamless Crown," which I feel constrained to answer, not because of any particular ambition to enter into a controversy, for the subject scarcely warrants it, but because in it references were made more directly to my criticisms in the November issue of the DIGEST, than to the real merits of the issue as the title of the letter would imply.

During discussion of the subject I took occasion to repeat an assertion that I have often made, that the seamless crown was more of a "fad" than anything else. I base this statement upon the fact that such a method possesses no distinct advantages over the ordinary method of crown construction, but on the contrary, two decided disadvantages, namely, the thinness of the gold after swaging, and consequent weakness, and the increased length of time consumed; both indisputable and important points.

The "beauty, artistic outline and contour" of a crown, no matter how constructed, does not always or necessarily depend upon the method employed, nearly so much as it does upon the skill and artistic ability with which it is produced; and the operator without

these prerequisite qualifications could not get any better results with one than he could with the other, and if anything less perfect with the seamless method, because it is certainly more difficult to properly shape and contour an entire tooth than the band itself.

Furthermore, since the band for each and every kind of crown must be fitted to the root with equal care and accuracy, after which the patient is dismissed, and the work incident to completion of crown confined to the laboratory, I can not possibly discern wherein the so-called burden of the operation is in any way lessened to either patient or operator. The only difference in time consumed so far lies in the contouring or shaping of the occlusal edge of the band, so that it may give a reproduction of the natural tooth form and outline, restore the contact points, and preserve the symmetrical alignment of the teeth, which should consume but a few moments at best, and which if skillfully and artistically executed, and the cusps are then made to fit this edge of the band, gives to the finished crown all that could be secured by the seamless method.

From here on more time is required by the seamless method, and the more consumed in the detail of any kind of work which is done in the laboratory only increases the tendency, already too prevalent, to consign it to dental laboratories—a practice which materially retards the acquirement of individual skill, and which in a measure takes away the self-reliance of the practitioner; and a custom which in the interests of the advancement of dental prosthesis should be deprecated and most vigorously condemned.

In considering the merits of the seamless crown it is mentioned that the band may be made to fit the root not only at the extreme edge, but to come in contact with it for one-sixteenth of an inch or more. If such an adaptation can be perfectly secured it is not at all objectionable, but if I succeed in getting a close adaptation even at the extreme edge I am quite contented and feel assured that my work will meet the requirements. Furthermore, if this point is deemed of particular advantage, there is a pair of rotary-point contouring pliers on the market (Dr. C. W. Miller's) with which the same may be easily, quickly and accurately accomplished.

As to the gentleman who makes and advocates *solid cusps*, so that in case the occlusion should not be correct he can grind away with impunity until the defect is remedied, I agree with Dr. Waack that the same is without advantage, for to me it seems, like the seamless

crown, a waste of time. In the first place, if the crown is made upon good models with a true bite it should never be necessary, and in the second place I would just as soon grind into a cusp well reinforced with 20 k. solder as to grind into a solid cast cusp. Should the occlusion be very faulty and considerable grinding be necessary, I would prefer to unsolder the cusp and shorten the band, then resolder, rather than disfigure the cusps, and here would be another advantage over the seamless crown.

I learn with regret that in the crown referred to, which I took occasion to show at the meeting, the Doctor failed to observe or detect any of the artistic results of seamless crownwork, and I would say that if he refers to contour alone I endeavor to contour only where it is indicated, and would call his attention to the statement I made at the time, and as he could see by the models, that it was for a second molar standing alone and to be used as an abutment crown for a bridge, hence decided contour was not called for.

If the Doctor still thinks that it is quite impossible to secure artistic results in the ordinary way, I shall be glad to so construct a crown for comparison with one that he may make, on the same root, at any of the coming clinics.

Further, if the seamless crown is especially adaptable to bicuspids, where the front is to be cut out and a porcelain facing inserted, no reasons were given for the same, and if my *guess* was incorrect as to the possible advantage, I shall have to give it up, because I can conceive of no other possible advantage than the one suggested, for the reason that in such a crown the facing itself restores the buccal contour, alignment and contact, thus appreciably relieving the metal part of such a requirement.

In conclusion, allow me to assure Dr. Waack that wherever such a crown would be indicated in the mouth, porcelain could be used with positive assurances of equal service and permanence; and further, that my ideas of progressive prosthesis are not based upon the "indiscriminate" use of anything, especially porcelain, as he might easily ascertain from a perusal of at least two somewhat extensive articles upon the subject published within the last year, but that they are based upon the judicious application of methods, principles and systems which promote the highest ideals and reach the highest in art, in the shortest and most practical manner.

Very truly yours, H. J. GOSLEE.

The Dental Digest.

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Where All Communications Should be Addressed.

Editorial.

ARMY REORGANIZATION BILL AS IT RELATES TO DENTISTS.

The army reorganization bill passed the House on Dec. 6 by a vote of 166 to 133, and the provision in it for dentists reads as follows:

"Provided, That the surgeon-general of the army, with the approval of the secretary of war, be, and he hereby is authorized to employ dental surgeons to serve the officers and enlisted men of the regular and volunteer army, in the proportion of not to exceed one for every one thousand of said army, and not exceeding thirty in all. Said dental surgeons shall be employed as contract dental surgeons under the terms and conditions applicable to army contract surgeons, and shall be graduates of standard medical or dental colleges, trained in the several branches of dentistry, of good moral and professional character, and shall pass a satisfactory professional examination: Provided, That three of the number of dental surgeons to be employed shall be first appointed by the surgeon-general with the approval of the secretary of war, with reference to their fitness for assignment, under the direction of the surgeon-general, to the special service of conducting the examinations and supervising the operations of the others; and for such special service an extra compensation of $60 a month will be allowed: Provided further, That dental college graduates now employed in the hospital corps who have been detailed for a period of not less than twelve months to render dental service to the army and who are shown by the reports of their superior officers to have rendered such service satisfactorily may be appointed contract dental surgeons without examination."

It is to be regretted that it was necessary for dentists to start in the army under such conditions. However, there is a feeling among those high in authority that the profession should prove itself capable of rendering the service and doing the good it claims to be able to do, before the dental corps is made a permanent feature of the service and given actual rank. This feeling is perhaps fair to the tax-paying public and to the credit of the United States government, but it is a pity the same conservatism was not shown in other pro-

visions of the bill, and the fact that it was not has caused many newspapers to criticise the measure unmercifully. One remarks, "It is not often the congressional spoilsmen have such a glorious opportunity, and they made the most of it by giving the army merit system a severe blow. As it now stands, volunteers and civilians can find more than one loophole to get into the service for which they may or may not be fitted, without examination, and as a crowning indignity, the age limit for lieutenants was removed. Any incapable volunteer officer of 50 years or so with the requisite pull can now be sure of getting a place next to or ahead of the latest batch of West Pointers fresh from four years of careful training, and after a few years' service can go upon the retired list with a comfortable pension for life. The bill is heavy with rich opportunities for the spoilsmen. It provides for a highly officered staff corps —of horse-doctors—and for a department of dental surgeons, in addition to other soft places which members of congress will really have the power to fill." Referring to the spoils feature of the measure the *New York Evening Post* says: "Such disorganization as this is the sole reward meted out to the faithful, gallant and capable little regular army which fought and won the battle of Santiago, which bears the brunt of the Philippine struggle, and whose merits were but yesterday trumpeted so loudly. Fortunately, the senate may yet insist upon some measure of decency before the bill becomes a law."

In view of this opposition the profession may perhaps think itself fortunate that any provision whatever is made for it, although there can be no question in the minds of any one, even a newspaper editor, that dentists are needed in the army. On the other hand, if ours were made a commissioned corps a better and more experienced class of operators would be attracted to the service, for those men who would give up a fair private practice to accept a commission (and substantially a life position), would hesitate or refuse to relinquish such practice to obtain a position which by the terms of their contract may, by the needs of the service or at the discretion of the commanding officer, be taken away from them. By law a commissioned officer is retired at sixty-four years of age, with retired pay during his remaining years, but under a contract position the holder may be retired to civil life without any remuneration so soon as he ceases to be efficient, whether by sickness, age or disabilities inci-

dent to the service, and a pension can be granted only by a special act of Congress.

It has been said that as contract dentists they would not be accorded a very pleasant reception at the hands of the officers, but this will depend entirely upon the men themselves. Any dentist who goes into the army with a thorough knowledge of his calling, and who does his work in a quiet and efficient manner, will be treated as a gentleman. Those practitioners who have come in contact with and done work for the officers and men of the regular service state that in almost all cases the treatment accorded them was all that could be desired. There is probably no place where character is judged more accurately or inefficiency censured more keenly than in the service of the United States army.

According to the bill now before the senate, the surgeon-general will appoint three chief dental surgeons to act as an examining board and to supervise the operations of the twenty-seven other appointees who will constitute the remainder of the corps. That board will probably be convened in Washington to assist in formulating rules and regulations covering the examination of candidates and governing the corps after it is established. Until such rules are printed no one can state positively what will be done, but the twenty-seven positions will be filled by competitive examination as provided by law.

When the entire body is established the members will be assigned individually by the surgeon-general to their positions wherever they are most needed, and in view of the small number of dentists for an army approximating 100,000 men, it is not probable that more than one member of the examining board will be retained in Washington. Furthermore, it is entirely within the range of possibilities that every member of the corps, examining board and all, will be sent to the outlying possessions, as the most of our forces are now stationed there, far away from any chance of securing dental service. In view of the great need for dentists in the army, it can not be reasonably expected that the three chief dental surgeons will be retained in Washington with nothing to do but draw their pay and perform a little clerical work. The surgeon-general believes his office force can take care of all routine work, and that the dentists should go where they can be of use, mainly to points where our army is now operating, or where it may be called at any future time.

When the dental department is increased to a hundred or more, the chief dental surgeon will probably be permanently located in Washington, but until the corps is very materially increased it will be unsafe for any one to speculate upon being detailed permanently to any one place. Every dentist applying for these positions will be expected to go where he is ordered, no matter whether it suits his convenience or not. Any practitioner who goes into the service with the idea that it is easy will be sadly disappointed, as the work will be very hard, necessitating long hours, and will consist for the most part of extracting, treating and cleaning teeth, inserting amalgam and cement fillings, and perhaps making rubber plates. Some applicants for these positions seem to think they will have electric engines, fountain cuspidors, cabinets, carpets, up-to-date dental chairs, etc. However, the most of our soldiers at present are chasing Filipinos and Boxers, and as the dentists will have to follow the soldiers, an adjustable head-rest or a portable dental chair will be all the office furniture that can be employed, except, of course, where army posts are situated in large cities.

From a humanitarian standpoint the bill is beneficial to the army, for even though two or three hundred dentists are needed, thirty will be able to accomplish a great deal. So far, however, as the dental profession is concerned, we regard the measure as an insult rather than an honor. Dentists seem to be viewed by legislators and army officials as on a par with horse doctors, for the appointees are not commissioned, are underpaid, and have little or no control of their own actions. If it were not for the fact that at the present time our soldier boys, who unfortunately can not have any say in this matter, are desperately in need of dental service, we should be glad to see the bill killed in the senate.

JOURNALISTIC HAPPENINGS.

Just at time of going to press we learn that Dr. W. George Beers of Montreal is dead. In his demise dental journalism suffers a severe loss, as he was an able and forceful writer, and the *Dominion Journal* never lacked for spicy editorials. A fuller notice will appear next month.

"Information" will hereafter be published at Madison, Wis., by Dr. W. G. Beecroft, as Dr. L. P. Bethel, its founder, has disposed of his interest in the paper. We have always thought that there

might be a field for a publication which should interest patients and impress upon them the necessity of caring for their teeth, etc. Up to date, however, we have not thought that "Information" covered the requirements of the case, but perhaps under the new management it will be more successful.

The Indiana Dental Journal is no more. Dr. Hunt announces in a circular letter the discontinuance of his publication, giving as a reason that "the editor was tired." While we did not always agree with Dr. Hunt on certain questions, we are sorry to see his bright little paper go out of existence, and shall miss its monthly visits.

PROTECTIVE ASSOCIATION AFFAIRS.

At the present time we can not tell our readers anything new, as all the cases brought against members by the International Tooth Crown Co. have been postponed until March, and will not come up for a hearing until then. The same is true of the examination of Sheffield and Kyle. We should like to push all these matters to a speedy conclusion, but as the United States Courts are always overcrowded with work, the Association must take its turn with other litigants.

Notices.

OREGON STATE DENTAL ASSOCIATION.

At the eighth annual meeting of this organization, Dec. 18 to 20, 1900, the following officers were elected: Pres., G. W. Gray; V. P., B. E. Wright; Sec. and Treas., C. R. Templeton; Ex. Com., J. R. Cardwell, G. H. Nottage.

CHICAGO ODONTOGRAPHIC SOCIETY.

The regular monthly meeting was held in the present quarters in the Masonic Temple on Monday evening, Dec. 17, 1900, with the president, Thos. L. Gilmer, in the chair. As this was the annual meeting, much business of a routine nature, including reports of officers and committees, and other executive affairs of interest to the members, was transacted, when it was suggested that the society adjourn after the election of officers in order to give every one an opportunity to be present at the annual meeting of the Dental Protective Association, which occurred the same night.

It seems too bad that two meetings of such importance should occur upon the same evening, and as this is the second time they have so conflicted, it is to be hoped that different arrangements may be made another year in the interests of both organizations.

The consent of the essayist of the evening, G. E. Hawkins, and also that

of Geo. W. Cook—prominent always, whether in Paris, Nashville, or at home, and especially popular at genuine old southern barbecues—to a postponement of the reading of his paper until a subsequent time being readily gained, the election of officers for the ensuing year proceeded merrily, and with as much harmony and dispatch as usually characterize the same, after which the meeting adjourned.

The election resulted as follows: Pres., L. S. Tenney; Vice-Pres., W. T. Reeves; Sec'y, F. H. Zinn; Treas., Geo. N. West; Member Exec. Board, J. F. Roach; Board of Censors, A. B. Allen, F. B. Noyes, W. Crosby Davis.

HART J. GOSLEE.

LATEST DENTAL PATENTS.

664,014. Dental floss-holder, W. C. Coryell, Youngstown, O.
664,126. Dental floss-holder, J. W. Cowan, Geneseo, N. Y.
664,412. Teeth regulating appliance, M. A. Knapp, Minneapolis.
664,523. Die-punch, Geo. C. Ainsworth, Brookline, Mass.
664,830. Dental articulator, J. W. Bryan, Russellville, Ky.
664,857. Fountain cuspidor, G. B. Haycock, Chicago.
665,571. Saliva ejector, C. O. Metzler, Omaha,
665,698. Dental plugger, W. F. Slack, Northwood, N. H.

TRADE-MARKS.

35,735. Tooth-powder or dentrifice, H. Works.

INSTITUTE OF DENTAL PEDAGOGICS.

The eighth annual meeting was held in the famous old Maxwell House at Nashville, Tenn., on Thursday, Friday and Saturday, Dec. 27-29, 1900, and proved to be one of the largest and most interesting gatherings in the brief but brilliant history of this splendid organization.

The advent of this society occurred at Chicago during the time of the World's Columbian Dental Congress in 1893, and its rapid growth, with the excellent work accomplished in this time, has made it one of the best, strongest, most vigorous and enthusiastic societies in the country, surpassing even the most sanguine expectations of its organizers.

It is composed exclusively of college teachers and has among its active working members most of the prominent instructors of our representative schools. As its mission is the presentation and discussion of teaching methods exclusively, without attempting legislative work of any nature, that which must result and accrue can not fail to benefit all interested in the profession from an educational standpoint.

Thirty-three of the forty-six colleges now in existence constitute the membership, of which twenty-three were represented, with an attendance of about seventy-five delegates, and many visiting members of the profession, who are always welcome whether teachers or not.

The meeting convened at 10 a. m. Thursday, Dec. 27, with the President, H. P. Carlton, of the dental department of the University of California, in the chair. The address of welcome was then delivered by D. R. Stubble-

field of Vanderbilt University, and was responded to by Truman W. Brophy of Chicago, on behalf of the society. After the preliminary executive business the president delivered his annual address, the theme of which was a strong, forceful presentation of the requirements and science of teaching.

The following program then occupied the remaining sessions, each essay provoking much discussion: "Use of Flexible Rubber in Orthodontia and Other Technic Teaching," J. Q. Byram, Indianapolis; "Teaching of Materia Medica and Therapeutics, How and How Much," A. H. Peck, Chicago; "Use of the Lantern in Teaching Dental Histology in its Relations to Operative Dentistry," Fred B. Noyes, Chicago; "Presentation of the Technic of Crown and Bridge Work, Metal and Porcelain," Thos. E. Weeks, Minneapolis; "Class-room Method of Teaching Oral Surgery," G. V. I. Brown, Milwaukee; "New Feature in Teaching Dental Anatomy and Operative Technics," A. E. Webster, Toronto, Can.

Interspersed here and there throughout the session were many pleasant features of entertainment provided by the local committee of arrangements, including a visit to the three local colleges, the famous Belle Mead stock farm, and attending a genuine southern barbecue.

At the close of the meeting the following officers were elected for the ensuing year: President, George E. Hunt, Indiana Dental College, Indianapolis; Vice President, Hart J. Goslee, Chicago College of Dental Surgery; Secretary Treasurer, H. B. Tileston, Louisville College of Dentistry; member Executive Board, W. H. Whitslar; Western Reserve University, Dental Department, Cleveland. The next place of meeting lies between Ann Arbor, Buffalo and Pittsburg, but no definite selection was made, it being left in the hands of the Executive Board.

The following is a list of the colleges represented and the delegates in attendance:

Northwestern University Dental School, G. V. Black, A. H. Peck, F. B. Noyes; Dental Department University of Minnesota, T. E. Weeks, F. N. Hertz, O. N. Weiss; Louisville College of Dentistry, H. B. Tileston, W. E. Grant; Royal College of Dental Surgeons, Toronto, Canada, W. E. Willmott, A. E. Webster; Dental Department Western Reserve University, Cleveland, W. H. Whitslar, George H. Wilson, J. C. Kenyon; Chicago College of Dental Surgery, T. W. Brophy, H. J. Goslee, L. S. Tenney, George W. Johnson, C. F. Bryant; Dental Department University of Michigan, N. S. Hoff; Ohio College of Dental Surgery, Cincinnati, H. T. Smith; Dental Department University of California, H. P. Carlton, J. D. Hodgen; Dental Department University of Buffalo, George B. Snow; Indiana Dental College, Indianapolis, George E. Hunt, J. Q. Byram; Birmingham Dental College, Birmingham, Ala., T. M. Allen, E. J. Merrill; Kansas City Dental College, J. D. Patterson; Southern Dental College, Atlanta, Ga., S. W. Foster; Dental Department Milwaukee Medical College, George V. I. Brown; Missouri Dental College, St. Louis, J. H. Kennerly; Pittsburg Dental College, H. W. Arthur; New York College of Dentistry, Ellison Hillyer; Illinois School of Dentistry, Chicago, D M. Cattell, George W. Cook, G. W. Dittmar.

HART J. GOSLEE.

CHICAGO DENTAL SOCIETY.

The regular monthly meeting of this organization was held in Schiller Hall, Monday evening, Jan. 7, 1901, the change of date from the regular meeting night—the first Tuesday—being occasioned by its coming this year on New Year's Day. The president, George W. Cook, was in the chair and the attendance was unusually large and bubbling over with the enthusiasm which indicates the contemplation and consideration of a topic of general and practical interest.

The subject of the evening was "A Symposium on Porcelain Inlay Work," with three of Chicago's most prominent and skilful advocates of the same in the leading roles. The wisdom of the program committee, and the unquestionable value of symposiums as a means of bringing out everything that could be said upon a subject, good, bad or indifferent, were demonstrated beyond a doubt. All in all, it was one of the best meetings which this society has held for a long time, which is saying a great deal. It was prolific of so much good to all, that no matter whether enthusiast or opponent, in the negative or in the affirmative, or occupying the exalted sphere of neutrality, each one was interested; and for the good of all modern progressive ideas may we hope for a more frequent appearance of this style of program. The symposium consisted of three brief essays—"Matrices and Mode of Preparation," by W. T. Reeves; "Bodies, Colors and Shadows," by W. H. Taggart, and "Cavity Preparation," by C. N. Thompson.

Dr. Reeves, one of Chicago's pioneers in this line, presented the results of his experience in a comprehensive manner, and while perhaps a little over-enthusiastic in general, which is to be expected in one who possesses special skill in any one line, he outlined his mode of matrix construction to the edification of all. In summarizing, he advocated using a platinum matrix, 1-1000 thick, and adapting same to the cavity by consecutive burnishings, using pledgets of damp cotton in increasing quantity under the burnisher, and a set of special instruments. He leaves a slight surplus of platinum on all margins except the cervical, and after matrix is adapted to cavity he burnishes this surplus so as to fit accurately all the margins. As one portion is adapted he holds it in position with a piece of india rubber, and so on until all edges are completed. Dr. Reeves further stated that after the matrix is properly fitted there is no necessity of refitting it after each baking—simply add porcelain each time that fuses at a slightly lower heat than the preceding bake, but he advocated a high fusing body.

Dr. Taggart indulged in a resume of porcelain bodies, their characteristics, manipulation and requirements, and the advantage of high over low-fusing bodies, because of their greater strength and translucency. He maintained that in order to secure the proper match it was necessary to have more than one color in the porcelain, just as the natural tooth has different shadings throughout its length. He thought that more important than proper colors and high grade bodies were the skill and knowledge necessary to use them, and that on this account the majority of operators would not obtain satisfactory results, except through much practice.

Dr. Thompson described in his usual practical manner the requirements of cavity preparation in all their details, calling special attention to marginal outline and necessary extension to facilitate freedom of ingress and egress of matrix in its adaptation.

The discussion was opened by C. N. Johnson, who admitted that he would have to retract part of his former declarations and prejudice, as he had recently seen inlays that were very beautiful and better than he had supposed could be made. However, he warned the profession against the too general use of porcelain, as its field was limited, and inlays should be confined to the anterior teeth—never used in occlusal cavities in bicuspids and molars.

A stronger stand against the practice was taken by J. E. Nyman, who stated that it was impossible to bake a porcelain inlay into the matrix of a complicated cavity, for owing to the shrinkage of porcelain in baking it was bound to draw away and change its form, so that when completed it would not fit. After considerable experience he had finally abandoned the use of inlays, except in simple cavities in the front teeth, believing that where a tooth is badly broken down or decayed, and where gold or amalgam is objectionable on account of color, it is better to cut it down and place a porcelain crown, which is more durable and much more artistic than an inlay.

J. N. Crouse stated that he had been making porcelain inlays for the last twenty years, but was not an advocate of them. He thought the chief obstacle to the success of inlays was the lack of a reliable cement, for after considerable scientific investigation he had become exceedingly suspicious of all cements, even for setting bridges. Some specimens were porous, some expanded and many of them shrank. Until a cement could be discovered which would not shrink and would not be affected by the fluids of the mouth, there was not much dependence to be placed on inlays.

E. M. S. Fernandez advocated taking an impression of the cavity, making metal dies and swaging the matrix to fit the cavity. He also thought inlays should be confined to the front teeth.

In closing the discussion Dr. Reeves took a radical stand in favor of inlays for all portions of the mouth, claiming that they could be used successfully almost anywhere, and that the ravages of decay were stopped when a porcelain inlay was put into a tooth.

So many others took part that our memory fails us, but we are sure every one had a chance, and that Brom Allen had several. Not much was left unsaid, the discussion proving a close second in importance and interest to the essays.

While it was easy to judge who were the successful and who the unsuccessful exponents, the general opinion prevailed that this art, while limited in its application, occupied a high and indisputable sphere of usefulness and had come to stay. Consequently the dentist of to-day and to-morrow must necessarily know something about it and practice it to some extent at least, However, most enthusiasts have been too extravagant in their claims for porcelain work in general, and this overzealous enthusiasm has been respon-

sible for many failures on the part of those attempting to follow in their footsteps, but where indicated porcelain attains the very highest degree of artistic perfection. HART J. GOSLEE.

News Summary.

J. H. THOMAS, a dentist at Crookston, Minn., died Dec. 19, 1900.

E. H. PHELPS, a dentist at St. Paul, was married Dec. 24, 1900.

JUDSON N. NORTH, of Newark, N. Y., was married Dec. 12, 1900.

H. L. LARGE, a dentist at Owosso, Mich., was married Dec. 26, 1900.

ROLLIN MITCHELL, a dentist at Fremont, O., was married Dec. 24, 1900.

SILAS GAINSFORT, a dentist at Billings, Mont., was married Jan. 1, 1901.

R. J. FITZSIMMONS, a dentist at Chester, Pa., was married Dec. 25, 1900.

CHARLES S. SCOTT, 57 years old, a dentist at Pittsburg, died Jan. 6, 1901.

T. E. BLACK, a dentist at Chattanooga, Tenn., was married Dec. 25, 1900.

OLIVER BLISS, 63 years old, a dentist at Potsdam, N. Y., died Dec. 5, 1900.

TRUTHFUL.—A Chicago dentist advertises: "Teeth extracted with great pains."

J. F. HASSELL, JR., 42 years old, a dentist at Carrollton, Mo., died Jan. 5, 1901.

C. W. DEDGE, a dentist at Sallie, Ga., was killed during a quarrel Dec. 22, 1900.

THOMAS O. WALTON, 66 years old, a dentist at Annapolis, Md., died Dec. 21, 1900.

EMORY M. BOWLUS, 48 years old, a well-known dentist at Middletown, Md., died Jan. 6, 1901.

JOSEPH S. HERTIG, 66 years old, a prominent dentist at Waynesburg, Pa., died Jan. 7, 1901.

F. L. MEINZER, a dentist at South Amboy, N. J., was severely hurt in a railroad wreck Jan. 9, 1901.

SHELBY GIBBS, the negro dentist who died at Cincinnati recently, was a protege of Dr. James Taylor.

WILLIAM R. FECHNEY, a dentist at Providence, R. I., was severely injured Dec. 26, 1900, by a revolving door.

NEW METHOD OF PRACTICE.—"Dentist O'Neil is in town to-day, pulling and filling the people's aches."—*Newspaper.*

ROBERT LAWRENCE, a young dentist at Denver, Col., committed suicide Jan. 9, 1901, while despondent over his wife's illness.

SHOUTLESS PATIENT WANTED.—"There is just one thing needed to make my business a success," said the Painless Dentist, "a shoutless patient."

HEAD OF THE LAKES DENTAL SOCIETY was organized Jan. 9, 1901, at Duluth. W. C. Minier was elected president, and R. H. Pierce secretary.

COCAIN KILLED HER.—A woman of Newville, O., died Jan. 8, 1901, from the effects, it is thought, of having cocain administered for extraction.

MASSACHUSETTS BOARD STRICT.—During the past year the Massachusetts State Board of Dental Registration has examined 201 applicants and passed 95.

C. SEARLE HURLBUT, 68 years old, and a prominent dentist at Springfield, Mass., died Jan. 6, 1901. Thirty young men were trained for the profession in his office.

SENSIBLE MAN.—"S. A. Burkett went to the dentist yesterday to get an impression for a set of teeth. He said he was tired of gumming it."—*Bradford (O.) Sentinel.*

JANESVILLE (WIS.) DENTAL SOCIETY, at a meeting Dec. 19, 1900. elected the following officers: Pres., J. N. Wells; V. P., J. R. Whiffen; Sec., L. L. Leslie; Treas., R. R. Powell.

SENT OR UNSENT.—Mr. Dooley: "Gimme a bar of soap, please."
Druggist: "Yes, sir. Do you want it scented or unscented?"
Dooley: "Aw, niver mind; I'll just take it wid me."

NORTH DAKOTA EXAMINING BOARD held its annual election of officers Jan. 8, 1901, with the following results: President, D. B. McLain; Secretary, H. L. Starling: members, R. B. Ramsey, H. S. Sowles, I. S. Irgens.

AMERICAN ACTORS' TEETH.—It is said that theatrical people of this country realize fully the necessity of having beautiful teeth, and that probably better looking mouths are found among them than in any other one class.

FEAR CAUSED HER DEATH.—A woman at Fall River, Mass., thought she had swallowed her false teeth, and although this was found not to be the case, her dread of a surgical operation caused paralysis and finally death.

DISASTROUS SLEEP.—An unfortunate individual has brought suit against a dental parlor in Cleveland, stating that he went to have one tooth extracted, but that while under the anesthetic the operator took them all out.

LIABILITY POLICY.—A casualty insurance company offers to insure dentists against damage suits for the modest sum of ten dollars per year, and if damages are allowed by the court to pay same up to twenty-five hundred dollars.

F. L. TAYLOR, a dentist at Boston, was blinded recently by having vitriol thrown in his face by a woman whom he had misled and deserted. The judge of the Superior Court simply put her on probation, and severely denounced Taylor.

EVANS' MUSEUM CHARTER FILED.—A copy of the charter of "The Thomas W. Evans Museum and Institute Society," which is to have charge of the prospective museum and dental institute to be established in Philadelphia, was filed Dec. 21, 1900.

MINNEAPOLIS DENTISTS WILL CARE FOR CHILDREN.—A committee appointed by the Minnesota State Dental Association last August has appeared before a teachers' convention and offered to teach the children in the public

schools the necessity of caring for their teeth. The teachers have taken the matter up earnestly, and the plan will undoubtedly be put in operation.

LUZERNE AND LACKAWANNA (PA.) DENTAL SOCIETY, at a meeting held Dec. 18, 1900, elected the following officers for the ensuing year: Pres., B. Smith; V. P., E. J. Donnegan; Rec. Sec., R. S. Meixell; Cor. Sec., O. Richards; Treas., Nellie M. Carle.

NEW YORK ODONTOLOGICAL SOCIETY, at its annual meeting, Dec., 1900, elected the following officers: Pres., W. W. Walker; V. P., J. F. P. Hodson; Rec. Sec., John I. Hart; Treas., F. C. Walker; Curator, J. A. Bishop; Editor, J. W. Turner; Cor. Sec, W. D. Tracy.

SMOOTH SURFACE TO VULCANIZED PLATE.—Dilute the liquid silex with twice its quantity of alcohol. With camel's-hair brush paint the model within and without. This gives a smooth surface and is much less trouble than using tin foil, etc.—*Wm. Crenshaw, Dental World.*

BANKRUPT.—J. F. Bicknell & Son, dentists at Lawrence, Mass., have declared themselves bankrupt. So has C. A. Kirkwood, a dentist at Chicago. So long as the new bankruptcy law is in effect no creditor is safe, as it offers an easy method for any one to evade his legal obligations.

FRACTURES OF THE JAW.—Professor Warnekros writes of the prosthetic apparatus to be used in these cases and urges a more general recognition on the part of the profession of the methods now available, especially the gutta-percha plate for use within the mouth.—*N. Y. Med. Jour.*

PAIN KILLER CAUSES DEATH.—A merchant at McKeesport, Pa., thirty years old, died suddenly Jan. 1, 1901, from heart failure, and it is thought this was caused by a pain-killer composed largely of cocain, which was injected into his gums some months ago before tooth extraction.

"ESSIG'S DENTAL MATALLURGY." A Manual for the use of Dental Students and Practitioners. By Charles J. Essig, M.D., D.D.S. New (4th) edition, thoroughly revised by Augustus Koenig. 277 pages, with 48 engravings. Cloth, $1.75, net. Lea Brothers & Co., Philadelphia and New York.

LARYNGITIS VERSUS FALSE TEETH.—A man in Corry, Pa., sixty-three years old, was supposed to be dying from laryngitis, but on examination it was found that he had swallowed his false teeth unconsciously, and they had remained in his throat one week without serious injury to him. After their removal he recovered

PAINLESS BUT NOISY DENTISTRY.—Lodger: "I must look for another room. The noise in the neighborhood last night was simply unbearable. Three times I was awakened by the shrieks of some person in agony." Landlady: "Please do not be hasty. It is but one night in the week when the painless dentist keeps open."—*Judge.*

SNEAK-THIEVES ACTIVE.—From all parts of the country come reports of dentists having suffered from sneak-thieves. They generally operate in the daytime, and especially in small towns where practitioners go home at noon. We would urge our readers to either carry valuable material home with them, or better still, to eat and sleep in their offices.

"TREATMENT OF MALOCCLUSION OF THE TEETH AND FRACTURES OF THE MAXILLAE." By Edward H. Angle, M.D., D.D.S., St. Louis. This work by this eminent authority has reached its sixth edition and has been entirely rewritten and greatly enlarged. It should be found in the library of every dental practitioner.

SECOND CHILDHOOD AGAIN.—According to a Pittsburg newspaper, a man in Pennsylvania, eighty-three years old, and toothless for twenty years, has now cut his third set of teeth. What is the use of our fooling with replantation and endeavoring to save the second set of teeth when the newspapers on demand can supply a third set?

MOLAR IMPLANTED IN THE ORBITAL PLATE OF THE MAXILLARY SINUS.—M. G. Liaras reports such a case, the tooth being found in the orbital plate of the left maxillary sinus. A sinusitis developed, which yielded promptly to surgical measures. The sinus remained open and was treated antiseptically. The tooth was not removed.

BEWARE OF PROCRASTINATION.—Last week a delinquent subscriber said he would pay up if he lived. He died. Another said, "I will see you to-morrow." He's blind. Still another said, "I'll pay you this week or go to the devil." He's gone. There are hundreds who ought to take warning of these procrastinators and pay up now.

ARMY RIFLE POWERFUL.—A striking illustration of the power of the Krag rifle was given by the suicide of a private recently in the Phillipines. He placed the muzzle of the gun to his chin and pulled the trigger. Several of his teeth were found imbedded in the galvanized iron roof of the quarters.—*Army and Navy Journal.*

NEW YORK CODE BAD FOR DENTISTS.—A woman in New York had a tooth pulled, and claimed that the dentist injured her jaw. She sued for damages, and under Section 549 of the code, which allows it when negligence in a professional capacity or injury to person is charged, she got an order of arrest, and the dentist had to give $2,000 bail to avoid being locked up.

RHODE ISLAND AFTER ILLEGAL PRACTITIONERS.—Four men employed in four dental companies were arrested Dec. 21, 1900, charged with illegally practicing dentistry, and were bound over to the grand jury under five hundred dollar bonds. If all the men working in dental parlors throughout the country were forced to obey the law, the state boards would grow rich.

THEATRICAL.—A young soubrette rushed to her dentist the other day in agony, as one of her third molars was ulcerated. The practitioner, who had supplied her with the most dazzling of her front teeth, said the tooth would have to be pulled. "Very well, doctor," remarked the actress, as she removed the plate, "I suppose I'd better take out my orchestra chairs so you can get at my back rows."—*Facts, Fads and Fancies About Teeth.*

CHRISTIAN SCIENTISTS CANNOT DISPENSE WITH DENTISTS.—A wealthy woman died in New York recently, leaving her fortune to the cause of Christian Science, and her brother and sisters, being cut off in the will, are contesting. During the litigation a healer testified that Christian Scientists

sometimes went to dentists, "but only because as yet they have not sufficient understanding of the Divine mind to do without dentists." According to this, medicine is a branch of dentistry, and not vice versa, as Mrs. Eddy's followers claim to be independent of all physicians.

RELATION BETWEEN ALOPECIA AND DENTAL LESIONS.—M. Jacquet found in forty persons suffering from alopecia, six with mediocre teeth, thirty-one with defective teeth, three only with perfect teeth. He believes that a close relation exists between alopecia and bad teeth or dental lesions, as both indicate an absence of some of the essential mineral salts in the body, especially the sulphates of sodium and potassium, the chlorid of sodium and the phosphate of calcium.—*Presse Medicale.—N. Y. Med. Jour.*

VULCANIZERS STILL AT IT.—If it were not for the meek and lowly vulcanizer the dentist's lot would indeed be a hard one, but so long as he has one of these instruments in his office, he need never lack for excitement. One exploded at Attica, N. Y., on Jan. 4, pieces going through the ceiling, in the office of Dr. R. R. Rykert. The office of Dr. C. L. Smith at Columbus, O., was wrecked on Dec. 26, 1900, and his assistant was seriously injured. On Jan. 7, 1901, the assistant in the office of Dr. J. A. Snyder was badly damaged by an explosion, his teeth being knocked out, his jawbones fractured and his face cut. Dr. N. R. Thompson and his wife, at Lewiston, Pa., were slightly injured Dec. 22, 1900, by a defective instrument.

SEEKING A SEPARATION.—"Do you give gas here?" asked a wild looking man who rushed into a dentist's office.

"We do," replied the dentist.

"Does it put a fellow to sleep?"

"It does."

"You could break his jaw, and he wouldn't feel it?"

"He would know nothing of it."

"Well, that'll do. Got it all ready for a fellow to take?"

"Yes. Take a seat in this chair and show me the tooth."

"Tooth, be hanged!" said the excited caller, beginning rapidly to remove his coat and vest. "I want you to pull a porous plaster off my back."

COCAIN INTOXICATION.—Among other acute intoxications Lemoine speaks of cocain. The only cases known of acute intoxication by this drug are due to its surgical employment for producing local anesthesia. The physician will surely be held responsible for these accidents, and so must know how to prevent and combat them. The first two signs of the intoxication are the vascular contraction which is shown by pallor of the face and peripheral tissues, and the nervous symptoms, such as delirium and incoherent speech. Arterial tension is raised, and convulsions both tonic and clonic soon appear. If death occurs it is caused by adynamia. In giving cocain the patient should always assume the dorsal decubitus to prevent cerebral anemia, and the dose should never pass the maximum of 10 cgm. At the first danger signal the patient should be immediately reversed. Amyl-nitrite inhalations are efficacious. Chloral hydrate, morphin, and bromid of potassium are good to combat the phenomena of cerebral excitation. If there is collapse, ether

and caffein hypodermically are indicated. The patient should be warmed by friction, hot applications, etc., to prevent the cooling of the body.—*Le Nord Medical.—Med. Rec.*

VETERINARY DENTISTRY.—Many veterinary colleges have incorporated dentistry in their curricula, and as a result of this some interesting reports have been made of the application of dentistry in its new sphere. Not long ago a dentist operated on a monkey who had toothache; a sheep farmer in Australia has had a set of artificial teeth made for a valuable ram, that, owing to the loss of its natural teeth, could no longer masticate its food. The result is most gratifying, the beast attacking its food with relish and without inconvenience from its false teeth. The possibilities in this direction are boundless, and the time may be near when ophthalmology, otology, etc., will be a requisite in veterinary medicine. As the farmer said of a decrepit, rather ancient, but beloved horse, "Dollie is a mighty fine horse yet; all she needs is a set of store teeth, a pair of spectacles and to have her ears treated." *The Bacillus.*

THERAPEUTIC VALUE OF PEROXID OF HYDROGEN.—Marcel Rifaux states that peroxid of hydrogen was discovered by Therard in 1818. This substance is a colorless, odorless liquid, having a piquant taste. It can be mixed with water in all proportions. Its oxygenizing power is considerable, for it gives up its oxygen with the greatest ease, which is the basis of its real antiseptic character. It is also a hemostatic. Clinically it is of the greatest service in all fetid, suppurating wounds. Old chronic otorrhea, for example, with fetid suppuration is rapidly deodorized by its use. It has been employed with some success for disinfecting the uterine and vaginal cavities. In epistaxis it is used as a hemostatic. The writer concludes from the study of peroxid of hydrogen that it merits an important place in therapeutics, as it is non-toxic, inodorous, a powerful deodorizer, an antiseptic of value, and a hemostatic of the first order.—*Lyons Medical.*

DISTURBANCES OF THE ORGANISM AS A RESULT OF PSYCHICAL SALIVATION.—By Dr. P. P. Hellat. The disease which this author describes is characterized by the following course. At first a perfectly healthy person begins to expectorate, and the expectoration becomes a habit. In the beginning the secretion of saliva is not very copious, but gradually it increases until the patients expectorate saliva by the glassful. The salivation becomes so great that it continues day and night without interruption. In addition the patients suffer from insomnia, headache and a number of neurasthetic symptoms. The author reports a number of such cases. The salivation continues indefinitely if not checked by appropriate treatment. The treatment consists chiefly in directing the patient to cease expectorating. This often meets with great objection, and some patients will not consent to swallow the saliva as it is secreted, asserting that it gives them a feeling of nausea. It is better, in order to avoid explanations in such cases, to prescribe dilute hydrochloric acid and to ask the patients to swallow some of the medicine every time they feel a desire to expectorate. The salivation is also accompanied by disturbances in the nutrition of the patient, especially if the

trouble is allowed to go on for a long time, and the treatment has restored the patients to health in all cases thus far recorded. The origin of the trouble is probably psychical.—*Vratch.*

PERCUSSION IN DIAGNOSIS OF AFFECTIONS OF THE FRONTAL AND MAXILLARY SINUSES. LIPOWSKI.—Hajek has called attention to the almost invariable occurrence of a lesion of one or more of these sinuses in influenza, typhoid fever, erysipelas, measles, scarlet fever and croupous pneumonia, but experience shows that spontaneous recovery is frequent. The signs of an affection of a sinus are a polyp, swelling of the middle turbinated bone, hypertrophy of the concave surfaces of the middle turbinated bone in the septum, where it is bathed by the secretion, scabs, atrophy of the inferior turbinated or fetidity. Resection of the front end of the middle turbinated bone affords convenient oversight of the hiatus semilunaris and the openings into it. Electric transillumination of the frontal and maxillary sinuses is an important aid to diagnosis. All these means, however, frequently fail and Lipowski announces that valuable supplementary information can be derived from percussion and ausculation of the cavities, the resonance in the nose, mouth and throat being increased by inserting a "sound-funnel" in the nostrils. Direct percussion of the antrum is most instructive when the phonendoscope is placed on the nasal process, and the upper lip drawn upward and outward to expose the anterior wall of the sinus on the side toward the mouth.—*Virchow's Archiv.—Jour. A. M. A.*

TIC DOULOUREUX.—Dr. F. H. Koyle, of Hornellsville, N. Y., said that on June 1, 1897, a woman of forty-eight years had come to him, saying she had had frequent pain in the right side of the face for fifteen years. In 1896, on different occasions, the first bicuspid, the second bicuspid, and the cuspid teeth were removed, and after each extraction there was only temporary relief. There was an enormous exostosis on the right side of the nose. On transillumination the right antrum remained dark. An opening was made through the cuspid fossa, but with a negative result. The patient refused to have the exostosis removed. Recalling the fact that there had been hydrorrhea, sometimes from one side of the nose and at other times from the other, he was led to suspect a reflex neurosis of ocular origin. Examination of the eyes showed myopic astigmatism and muscular insufficiencies, hyperphoria and esophoria. Her eyes were fitted with glasses and systematic exercises for the weak eye muscles were prescribed. The improvement in the muscular balance was marked, and with this there was diminution in the neuralgic pain. Eventually the muscular balance was affected, and then the patient was freed from her long-standing pain. The ciliary ganglion was the connecting link between the third and fifth nerves, and it was through this ganglion that an irritation in the third nerve had been communicated to the fifth nerve and had given rise to the neuralgia.

Dr. Lester asked what the condition of the pupils was, and also if in giving the exercise, attention had been paid to the heterophoria.

Dr. Koyle replied that both pupils were apparently normal. In the exercise he had given attention first to the hyperphoria.—*N. Y. Med. Jour.*

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